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ILLINOIS GRAIN PRODUCTION AND TRADE

By C. P. Schumaier

Bulletin 637
UNIVERSITY OF ILLINOIS
AGRICULTURAL EXPERIMENT STATION

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The author gratefully acknowledges the assistance of the many individuals and firms who supplied the data concerning marketing and processing facilities and grain destinations. Without their generous cooperation, such information would have been unobtainable. The surveys of merchandising, processing, and storage facilities were made in connection with and were partly financed with funds from a North Regional Project entitled "Economics of Grain Storage."

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ILLINOIS GRAIN PRODUCTION AND TRADE

C. P. Schumaier, Assistant Professor of Agricultural Economics

ILLINOIS is a leading grain producing and processing state. Grain sales account directly for some 40 percent of Illinois farm income, for Illinois farmers sell a larger volume of cash grain than those of any other state. Grain processing industries, including soybean processing, represent 25 to 30 percent of the total value added by all manufacturing plants in the food and related industries in the state. The combined country, subterminal, and terminal elevator storage capacity in Illinois is the third largest in the country. This storage capacity along with trading agencies dealing in both cash grain and grain futures facilitates the orderly and efficient transfer of grain from farmer to consumer.

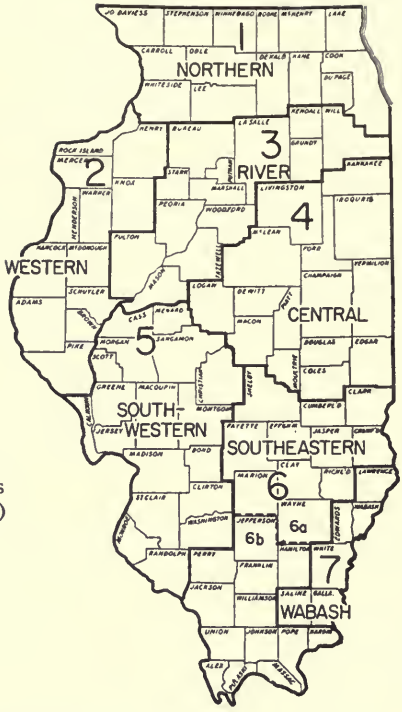
Although reports on production, stocks, movements, storage capacity, and other aspects of grain production are available at regular intervals, formal attempts to collect and analyze these reports are infrequent. The purpose of this bulletin is to present the information contained in these reports in such a way as to make it easily used by farmers, farm leaders, and businessmen in the grain trade and processing industries.

SCOPE OF THE STUDY AND SOURCES OF THE DATA

The study examines three broad areas: (1) grain production and sales volumes and trends; (2) local market facilities and first destinations of grain from local markets, including transportation; and, (3) grain storage space and grain utilization in Illinois.

The present study brings together figures on production, sales, and use of grain in Illinois, provides some comparisons with other states and between areas within the state, and analyzes trends in production and sales. Statistics on production and sales are from three sources: annual editions of Agricultural Statistics, the decennial Censuses of Agriculture, and various bulletins of the Illinois Cooperative Crop Reporting Service.

Illinois is a large state with diverse production and marketing patterns. To obtain more meaningful information, counties have been



Grain marketing areas in Illinois. (Fig. 1)

grouped into seven areas on the basis of grain sales per acre and homogeneous marketing patterns (Fig. 1).

Data concerning merchandising, processing, and storage facilities were obtained from a mail survey and personal interviews. For a more detailed explanation of the methods used, see page 27.

PART I — GRAIN PRODUCTION AND SALES

Illinois ranks first in the U. S. in sales of three of the four major grain crops — corn, wheat, oats, and soybeans. Only in wheat production is Illinois far down on the list of states. In total grain marketed, Illinois is well ahead of Iowa, her closest competitor.

This huge supply of grain enters either directly or indirectly into the food supply of the country and the world and is a subject of interest to farmers, the grain trade, and consumers alike.

In addition to the four major grains, barley, rye, sorghum, and cowpeas are also grown in Illinois, but these grains combined averaged less than 1 percent of total production during the 1947-1956 period.

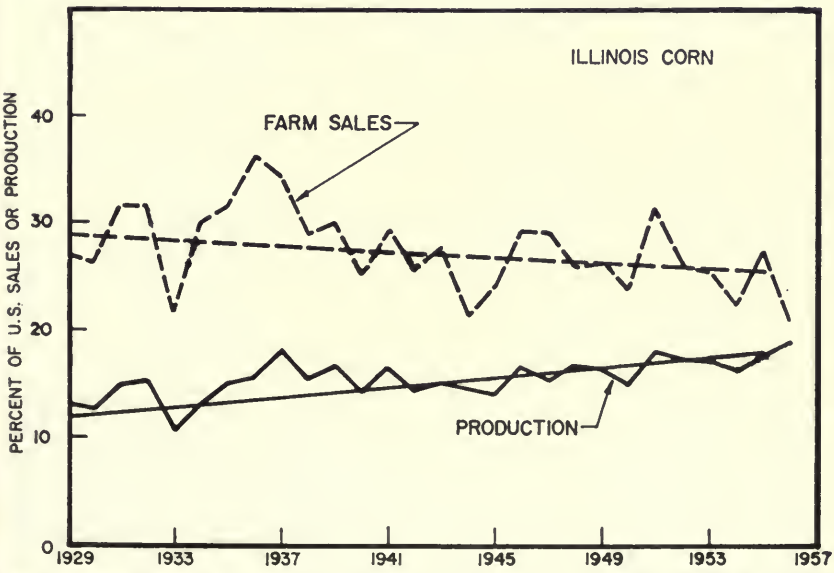
ILLINOIS AND U. S. PRODUCTION, 1929-1956

Production of the four principal grain crops has increased in Illinois since 1930. However, the trends in Illinois' share of total production and total sales from farms in the U. S. differ for each grain.

Corn

Illinois usually ranks second to Iowa in corn production for all purposes, but more corn is sold from Illinois than from Iowa farms. The top ten states in production, 1947-1956, and the amounts sold from the 1955 crop are shown below.

Rank (for production)	State	Annual production, 1947-1956 average	Sales, 1955 crop
		bu.	*bu.*
1.....	Iowa.....	534,465,000	161,999,000
2.....	Illinois.....	489,802,000	269,109,000
3.....	Minnesota.....	254,600,000	101,180,000
4.....	Indiana.....	245,397,000	94,237,000
5.....	Nebraska.....	195,967,000	37,699,000
6.....	Ohio.....	194,063,000	91,350,000
7.....	Missouri.....	150,218,000	43,014,000
8.....	Wisconsin.....	134,945,000	11,269,000
9.....	South Dakota.....	103,109,000	24,881,000
10.....	Kentucky.....	77,243,000	11,113,000



Illinois production of corn for grain and total farm sales as a percent of total U. S. production and sales, 1929-1956. (Fig. 2)

Illinois produces about 18 percent of all U. S. corn harvested for grain and sells about 25 percent of all that sold from farms (Fig. 2). During the 28-year period, 1929-1956, the trend in Illinois' share of total U. S. production was rising. It rose from about 12 percent of total production in 1929 to about 18 percent in 1956 (Fig. 2). During the same period, the trend of corn sold from farms was downward. It declined from about 30 percent of total U. S. farm sales in 1929 to about 25 percent in 1956 (Fig. 2). Both trends appear to have been continuing since 1945.

The 1929-1933 and the 1951-1955 averages show that between the two periods production in Illinois increased about two-thirds and in the U. S. about one-third. During the same time, however, the amount of corn sold from farms increased 87 percent in Illinois and 98 percent in the U. S. Thus more of the increase in production in the state was used on the farms where it was grown than was used on farms in the U. S. as a whole, even though as production increased, a larger percentage was sold from farms in both Illinois and the U. S.

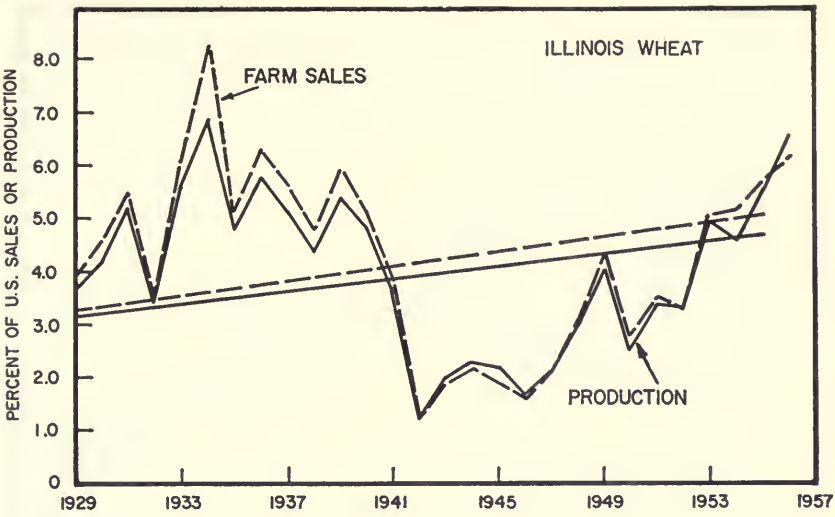
Wheat

About 90 percent of all wheat grown both in the U. S. and Illinois is sold; therefore rank in production and sales is nearly identical. In the 1947-1956 decade, Illinois ranked ninth in production. During 1947-1956, the ten leading states were:

Rank (for production)	State	Annual production, 1947-1956 average
		bu.
1	Kansas	187,948,000
2	North Dakota	116,367,000
3	Montana	88,428,000
4	Nebraska	77,203,000
5	Oklahoma	71,000,000
6	Washington	70,244,000
7	Ohio	49,949,000
8	Texas	43,686,000
9	Illinois	43,430,000
10	Idaho	39,941,000

During the decade, Illinois produced an average of almost 43½ million bushels annually. Production in Illinois declined from about 7 percent of the national total in 1934 to just over 1 percent in 1941 (Fig. 3). After 1946, production increased rapidly and since 1953 has comprised 5 to 6 percent of the U. S. total, about the same percentage as in the late 1930's.

Over the period 1929-1956, Illinois produced about 4 percent of



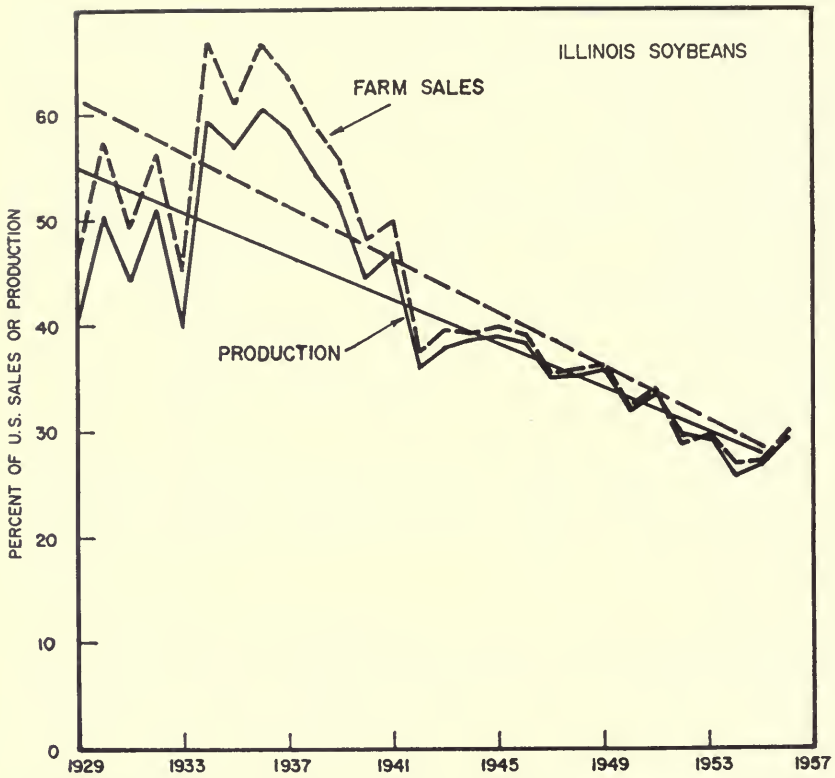
Illinois production of wheat and total farm sales as a percent of total U. S. production and sales, 1929-1956. (Fig. 3)

the U. S. total. In the 1951-1955 period, production averaged about 28 percent higher than in the 1929-1933 period. The postwar increase in Illinois production can probably be attributed to corn acreage allotments, the desire to retain wheat-base acreages as an insurance against further cuts in other crops, and high yields, the latter at least partly induced by a high level of support prices.

Soybeans

Like wheat, over 90 percent of soybeans is sold from farms. Therefore for any state, rank in production and sales is identical. The rank and production of the ten leading states for 1947-1956 are given below.

Rank (for production)	State	Annual production, 1947-1956 average
		bu.
1	Illinois	90,978,000
2	Iowa	39,630,000
3	Indiana	38,864,000
4	Minnesota	26,868,000
5	Missouri	25,211,000
6	Ohio	23,290,000
7	Arkansas	12,253,000
8	Mississippi	6,054,000
9	North Carolina	4,894,000
10	Kansas	4,043,000



Illinois production of soybeans and total farm sales as a percent of total U. S. production, 1929-1956. (Fig. 4)

Almost all soybean production has developed since 1929. Until 1940, Illinois produced and sold about half or more of the total U. S. crop. Since 1949, in spite of continuing increases, the trend in Illinois' share of total production has been steeply downward, now being only about a fourth of the total (Fig. 4). This trend indicates a more rapid expansion of production in other states than in Illinois.

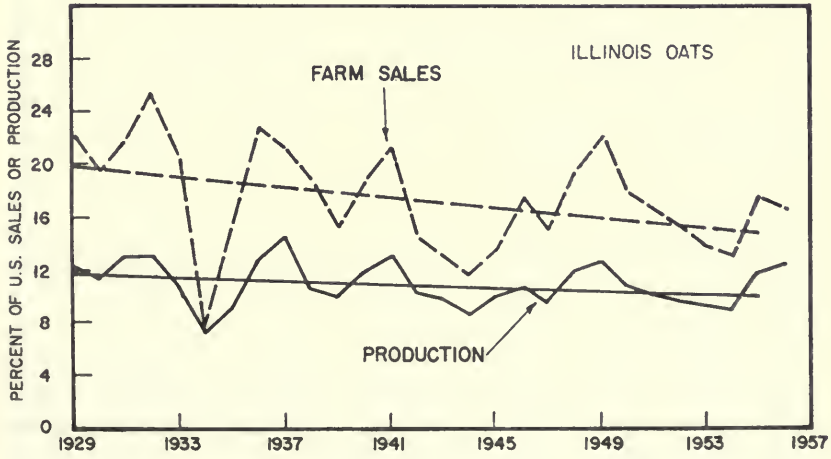
During the 1929-1933 period, total production averaged 15 million bushels annually, of which Illinois produced an average of about 7 million bushels annually. Between 1929-1933 and the middle 1950's U. S. production rose to more than 450 million bushels annually and Illinois production to over 100 million annually. The rapid increase in production shows little sign of leveling off either in the U. S. or in Illinois.

Oats

Illinois ranks next to Iowa and Minnesota in oat production. But in oats sold, as in corn, Illinois leads the country. The rank, the average production for 1947-1956, and the amount sold for the 1955 crop year are given below.

Rank (for production)	State	Annual production, 1947-1956 average	Sales, 1955 crop year
		bu.	*bu.*
1	Iowa	213,763,000	51,642,000
2	Minnesota	185,805,000	43,549,000
3	Illinois	142,004,000	69,189,000
4	Wisconsin	129,369,000	13,200,000
5	South Dakota	90,895,000	33,222,000
6	North Dakota	51,855,000	14,327,000
7	Nebraska	51,780,000	10,894,000
8	Indiana	49,645,000	20,514,000
9	Michigan	46,968,000	12,138,000
10	Ohio	44,910,000	21,294,000

The trend in Illinois' share of total U. S. oat production has shown less change than the trend of any of the other grains. Of total production, Illinois produced 11.7 percent in 1929 and 10.2 percent in 1956 (Fig. 5). The trend of oat sales, like that of corn sales, has been downward. It declined from about 20 percent of the total in 1929 to about 15 percent in 1956.



Illinois production of oats and total farm sales as a percent of total U. S. production and sales, 1929-1956. (Fig. 5)

Between 1929-1933 and 1951-1955, oat production in Illinois increased about 2 percent and in the U. S. about 17 percent. Between the two periods, oats sold also increased 16 percent in Illinois and 66 percent in the U. S. Thus the country as a whole sold a greater percent of its increased production than did Illinois.

Summary

Since 1929-1933, production and sales of all four major grains have increased in Illinois. Corn production has increased faster and sales have increased more slowly in Illinois than in the nation. Both oat production and sales have increased at a slower rate in the state than in the U. S. As a result of these trends, Illinois now supplies a smaller percentage of the corn and oats sold than formerly, although the percentage sold from farms for both the state and the U. S. has increased since 1929-1933. Illinois is still by far the leading supplier of soybeans, but other areas have come into production and the percentage of the total crop that Illinois now supplies has declined. After a wartime decline, the state is again producing about its prewar proportion of the U. S. wheat crop.

What changes may be expected

In the future Indiana and Ohio may well continue to increase their corn production, taking part of what has been a very large northeastern market for Illinois corn, because these states are closer to this market. Indiana and Ohio also may be in a better position to supply feed for the growing southeastern broiler industry than Illinois and Iowa, particularly if a large share moves by truck. Since oats must compete with soybeans and corn in Illinois and since both crops give much higher returns than oats, oat production in Illinois will probably decline in importance.

Soybeans have taken much land formerly in oats and have moved south onto land formerly in redtop and cowpeas, or lying idle. As long as present favorable price relationships with other grains persist, soybean production should continue to expand, although probably at a slower rate than in areas outside Illinois.

Wheat acreage was severely curtailed during the war years when the emphasis was shifted to feed-grain production. Lowering the support price of wheat relative to other crops would undoubtedly again reduce Illinois wheat acreage and production.

PRODUCTION AND SALES BY AREAS, 1939-1943, 1949-1953, and 1954-1956 AVERAGES

Production — Four Major Grains

Between 1939-1943 and 1949-1953, total average annual production of corn, wheat, soybeans, and oats increased 24 percent (Tables 1-3) and by 1954-1956 had increased an additional 14 percent over the 1939-1943 average. The largest increases occurred in soybean production, followed in this order by wheat, corn, and oats. Only oats failed to show a large increase. (For production by counties and areas, see Tables 31-34, pages 90 to 99.)

The three southern areas — 5, 6, and 7 — had larger and the four northern areas — 1 through 4 — had smaller percentage gains than the state as a whole. Area 6 had the largest increase, 93 percent. Increases for the southern part of the state would have been even larger had the comparison been on a dollar basis, because the three southern areas had small oat production and increased their production of crops of higher value; namely, corn, wheat, and soybeans. Between the 1939-1943 and 1949-1953 periods, Areas 3 and 4, the river and east-central areas, had the smallest percentage gains. The percent of increase for 1954-1956 over 1939-1943 was smallest in Area 3. The increase in bushels for the 1949-1953 and the 1954-1956 periods was largest in

Table 1. — TOTAL CORN, WHEAT, SOYBEAN, AND OAT PRODUCTION: By Areas; 1939-1943, 1949-1953, and 1954-1956 Averages and Percents of Increase

Area	Average, 1939-1943	Average, 1949-1953	Average, 1954-1956	Increase of 1949-1953 over 1939-1943		Increase of 1954-1956 over 1939-1943	
	thousand bu.	*thousand bu.*	*thousand bu.*	*thousand bu.*	*perct.*	*thousand bu.*	*perct.*
1.....	104,162	126,524	135,631	22,362	21	31,469	30
2.....	82,523	99,020	110,858	16,497	20	28,335	34
3.....	114,193	130,857	142,494	16,664	15	28,301	25
4.....	172,605	203,136	232,392	30,531	18	59,787	35
5.....	82,501	112,131	117,515	29,630	36	35,014	42
6a.....	28,101	47,315	55,751	19,214	68	27,650	98
6b.....	12,667	17,900	22,797	5,233	41	10,130	80
7.....	11,267	15,858	19,237	4,591	41	7,970	71
Total..	608,019	752,741	836,675	144,722	24	228,656	38

Area 4, because over one-fourth of the state's grain production is concentrated there.

In the 1939-1943 period, the three southern areas produced only 22.1 percent of the state's total production of the four principal grains. Their impressive percentage gains, therefore, brought their share of the state total to only 25.7 percent in the 1949-1953 and 1954-1956 periods. When looked at from the point of view of where the increase took place, there was still considerable gain since 1939. Between 1939-1943 and 1949-1953, total Illinois production increased 144,722,000 bushels. Of this increase, 58,668,000 bushels or slightly less than 41 percent occurred in these three southern areas. Between 1939-1943 and 1954-1956, total production increased 228,656,000 bushels. Of this increase, 80,764,000 bushels or about 35 percent occurred in these areas. Within this southern area, the largest increases took place in the northern counties of Area 6 (Sub-area 6a). In the seven counties at the extreme southern tip of Illinois, increases were only very small and in some places there were decreases.

Corn

In the 1949-1953 period, corn production averaged about 486 million bushels annually, a 23-percent increase over the average of a little over 395 million bushels in the 1939-1943 period (Table 2). In the 1954-1956 period, production averaged more than 524 million bushels annually, a 33-percent increase over the 1939-1943 average. In the 1949-1953 period, McLean county with 17.5 million bushels and LaSalle county with 15.8 million bushels led the state. Other counties producing an average of over 10 million bushels were Livingston, Champaign, Iroquois, Bureau, Henry, Lee, and DeKalb in that order (Table 31, page 90). Between 1939-1943 and 1949-1953, production in Area 7 increased 44 percent, in Area 6, 42 percent, and in Area 5, 36 percent. In the four northern areas, increases were either less than or equal to the state average (Table 2).

In 1954-1956, production in McLean county averaged 18.7 million bushels and in LaSalle county 17.7 million bushels. In addition to the seven counties listed in the above paragraph, three counties, Ogle, Whiteside, and Vermilion, averaged more than 10 million bushels annually. By 1954-1956, average production further increased over the 1939-1943 average in all areas except Area 5, where in 1954 drouth adversely affected the crop.

The largest percentage increases (Table 31) occurred in the south-

Table 2. — CORN, WHEAT, SOYBEAN, AND OAT PRODUCTION: By Areas; 1939-1943, 1949-1953, and 1954-1956 Averages and Percents of Increase

Area	Average, 1939-1943	Average, 1949-1953	Average, 1954-1956	Increase of 1949-1953 over 1939-1943		Increase of 1954-1956 over 1939-1943	
	thousand bu.	*thousand bu.*	*thousand bu.*	*thousand bu.*	*perct.*	*thousand bu.*	*perct.*
			Corn				
1.....	68,251	84,259	93,500	16,008	23	25,249	37
2.....	57,834	67,818	74,345	9,984	17	16,511	28
3.....	76,060	87,542	95,337	11,482	15	19,277	25
4.....	109,349	130,312	140,514	20,963	19	31,165	28
5.....	46,761	63,694	61,378	16,933	36	14,617	31
6a.....	19,727	28,810	31,466	9,083	46	11,739	60
6b.....	8,942	11,785	14,053	2,843	32	5,111	57
7.....	8,156	11,707	13,594	3,551	44	5,438	67
Total...	395,080	485,927	524,187	90,847	23	129,107	33
			Wheat				
1.....	781	870	808	89	11	27	3
2.....	2,842	4,024	4,290	1,182	42	1,448	51
3.....	2,741	3,306	3,132	565	21	391	14
4.....	3,697	7,484	9,068	3,787	102	5,371	145
5.....	13,815	17,136	20,975	3,321	24	7,160	52
6a.....	1,477	4,092	8,102	2,615	177	6,625	448
6b.....	1,666	2,181	3,633	515	31	1,967	118
7.....	1,624	1,855	2,817	231	14	1,193	73
Total...	28,643	40,948	52,825	12,305	43	24,182	84
			Soybeans				
1.....	2,600	2,505	3,716	−95	−4	1,116	43
2.....	5,942	8,379	10,225	2,437	41	4,283	72
3.....	6,693	9,007	12,187	2,314	34	5,494	82
4.....	26,187	30,364	40,705	4,177	16	14,518	55
5.....	9,428	21,474	23,075	12,046	128	13,647	145
6a.....	2,596	11,434	11,883	8,838	340	9,287	358
6b.....	351	3,327	3,330	2,976	845	2,979	849
7.....	544	2,054	2,074	1,510	278	1,530	281
Total...	54,341	88,544	107,195	34,203	63	52,854	97
			Oats				
1.....	32,530	38,891	37,607	6,361	20	5,077	16
2.....	15,905	18,799	21,998	2,894	18	6,093	38
3.....	28,699	31,002	31,838	2,303	8	3,139	11
4.....	33,372	34,976	42,105	1,604	5	8,733	26
5.....	12,497	9,827	12,087	−2,670	−21	−410	−3
6a.....	4,301	2,979	4,300	−1,322	−31	−1	0
6b.....	1,708	607	1,781	−1,101	−64	73	4
7.....	943	242	752	−701	−74	−191	−20
Total...	129,955	137,323	152,468	7,368	6	22,513	17

Table 3. — TOTAL PRODUCTION AND PERCENT OF TOTAL PRODUCTION: By Areas; Corn, Wheat, Soybeans, and Oats, 1929-1956

	1929	1934	1939	Average, 1939-1943	1944	1949	1950	1951	1952	1953	Average, 1949-1953	1954	1955	1956	Trend[a]
Corn															
Total production, all areas, millions of bushels	275.8	151.6	401.3	395.1	400.1	499.6	422.3	480.5	521.9	505.3	485.9	458.6	513.6	598.7	
Percent of total															
Area 1	11.6	14.3	14.3	17.3	17.1	16.7	16.8	16.2	18.7	18.2	17.4	20.1	16.1	17.6	N
Area 2	14.3	11.4	14.8	14.6	16.5	13.8	14.6	14.0	14.4	13.1	14.0	15.1	14.4	13.4	N
Area 3	19.4	15.4	19.9	19.3	19.8	17.9	17.7	18.1	18.6	17.9	18.0	20.9	17.0	17.1	D
Area 4	33.2	31.6	29.1	27.7	27.4	28.5	25.7	26.8	25.9	27.5	26.8	28.7	26.5	25.6	D
Area 5	12.7	8.5	12.4	11.8	10.3	12.9	13.7	13.3	12.2	13.0	13.1	6.8	14.1	13.4	I
Area 6	6.4	13.8	7.5	7.3	6.9	7.9	8.7	9.0	7.9	8.1	8.3	6.0	9.4	10.1	I
Area 7	2.4	5.0	2.0	2.1	2.0	2.3	2.8	2.6	2.1	2.2	2.4	2.4	2.5	2.8	I
Wheat															
Total production, all areas, millions of bushels	29.8	36.6	39.8	28.6	23.5	44.0	27.6	33.4	42.4	57.3	40.9	47.0	52.0	59.5	
Percent of total															
Area 1	5.0	1.6	2.0	2.7	2.1	1.8	1.9	2.7	2.2	1.8	2.1	1.6	1.5	1.5	D
Area 2	10.1	7.6	11.4	9.9	6.2	10.8	11.1	8.9	9.6	9.2	9.8	8.2	8.5	7.9	D
Area 3	16.3	7.1	8.5	9.6	7.8	8.3	8.4	7.5	7.6	7.2	8.1	6.5	5.8	8.1	D
Area 4	25.2	15.8	14.1	12.9	6.6	17.0	14.8	17.3	19.9	19.8	18.3	17.3	17.7	16.8	I
Area 5	34.1	48.7	50.3	48.2	53.5	43.5	43.8	43.9	41.4	39.6	41.9	38.4	39.7	39.7	D
Area 6	5.2	11.8	9.5	11.0	15.1	14.8	15.6	15.4	14.9	17.6	15.3	21.9	22.3	21.7	I
Area 7	4.1	7.4	4.2	5.7	8.7	3.8	4.3	4.2	4.4	4.8	4.5	6.1	4.5	5.3	N
Soybeans															
Total production, all areas, millions of bushels	3.2	13.8	46.4	54.3	73.2	83.8	95.7	95.1	89.1	78.8	88.5	89.1	99.5	135.0	
Percent of total															
Area 1	0.4	1.3	3.5	4.8	3.7	2.9	2.7	2.7	2.7	2.9	2.8	3.7	3.1	3.6	N
Area 2	9.1	8.5	9.4	10.9	11.3	8.7	9.2	8.8	9.2	10.3	9.5	10.8	9.8	8.5	D
Area 3	4.2	6.6	11.5	12.3	12.3	9.9	9.8	10.0	9.0	11.0	10.2	11.8	11.2	11.2	N
Area 4	47.2	51.4	55.0	48.2	43.8	35.7	35.5	32.7	33.3	35.9	34.3	41.6	36.6	36.6	N
Area 5	30.9	23.6	14.9	17.4	19.8	24.2	24.1	25.0	25.5	22.6	24.2	18.2	22.9	22.7	I
Area 6	7.1	7.8	5.1	5.4	8.1	16.3	16.4	18.1	17.0	15.3	16.7	11.9	14.3	15.6	I
Area 7	1.1	.8	.6	1.0	1.0	2.3	2.4	2.7	2.4	2.0	2.3	1.9	2.1	1.8	I

[a] Capital I means trend is increasing; D, decreasing; and N, no trend.

Table 3. — Concluded

	1929	1934	1939	Average, 1939-1943	1944	1949	1950	1951	1952	1953	Average, 1949-1953	1954	1955	1956	Trend[a]
Oats															
Total production, all areas, millions of bushels	128.2	34.1	97.1	130.0	92.0	159.1	155.6	134.4	122.4	115.1	137.3	137.2	177.4	142.9	
Percent of total															
Area 1	17.8	20.1	25.0	25.0	28.3	25.5	25.9	30.5	29.7	31.3	28.3	27.0	22.9	24.6	D
Area 2	12.0	6.3	13.4	12.2	10.7	14.1	13.8	12.4	13.8	14.2	13.7	15.6	14.7	12.9	I
Area 3	22.5	13.6	24.6	22.1	23.0	22.5	21.1	23.3	23.0	23.2	22.6	20.3	21.4	20.8	D
Area 4	38.4	41.4	24.3	25.7	25.4	27.5	25.9	24.9	25.4	23.5	25.5	25.7	28.6	28.2	I
Area 5	6.4	11.0	8.7	9.6	7.9	7.5	9.3	6.4	6.2	5.6	7.0	6.8	8.4	8.4	D
Area 6	2.3	5.6	3.4	4.6	4.2	2.7	3.7	2.3	2.2	1.9	2.6	4.0	3.6	4.5	D
Area 7	.6	2.0	.6	.7	.5	.2	.3	.1	.1	.2	.2	.6	.4	.6	D
All grains															
Total production, all areas, millions of bushels	437.1	236.1	584.6	608.0	588.8	786.5	701.3	743.4	775.9	756.5	752.7	731.8	842.5	936.0	
Percent of total															
Area 1	12.9	12.4	14.4	17.1	16.6	16.1	16.5	16.5	17.6	17.3	16.8	18.2	15.1	15.6	D
Area 2	13.3	9.9	13.9	13.6	14.5	13.2	13.6	12.8	13.5	12.7	13.1	14.3	13.5	12.2	N
Area 3	20.0	13.3	19.2	18.8	18.9	17.4	17.1	17.5	17.7	17.2	17.4	18.8	16.6	16.4	D
Area 4	34.1	31.7	29.3	28.4	28.3	28.4	26.4	26.8	26.1	27.1	27.0	29.0	27.6	26.9	D
Area 5	12.6	16.0	14.6	13.6	12.8	14.8	15.3	14.9	14.6	14.9	14.9	10.2	15.5	15.6	I
Area 6	5.1	12.0	6.8	6.7	7.0	8.1	8.8	9.3	8.5	8.7	8.7	7.3	9.6	10.8	I
Area 7	2.0	4.7	1.8	1.8	1.9	2.0	2.3	2.2	2.0	2.1	2.1	2.2	2.1	2.5	I

[a] Capital I means trend is increasing; D, decreasing; and N, no trend.

eastern counties, ranging up to 96 percent in Wayne county. These increases occurred from low bases. For example, corn production in McLean county increased 2.6 million bushels, but only 17 percent; whereas in Wayne county, production increased 1.5 million bushels and 96 percent.

The trend to increased corn production in southern Illinois continued through 1954-1956. In eight counties — Effingham, Clay, Edwards, Wayne, Marion, Jefferson, Richland, and Perry — average production in 1954-1956 was about double that of 1939-1943 (Table 31, page 90). The effects of the 1954 drouth show up in a band of counties from Moultrie and Shelby west through Morgan, Scott, and Pike. In 1954-1956, average production was higher than the 1939-1943 average in all counties in the three southern areas, including those affected by the drouth. (In Areas 5 and 6, the 1954 crop was less than half as large as the 1955 and 1956 crop.)

Wheat

During 1949-1953, wheat production averaged about 41 million bushels, an increase of 43 percent over the 1939-1943 average (Table 2). Production fell to a very low level in 1942 and 1943 and has increased rapidly since. Rising average yields have permitted total production to expand in spite of acreage restrictions. By 1954-1956, average production had increased to about 53 million bushels, an increase of 84 percent over the 1939-1943 average.

During 1949-1953, Christian county with an average of 1.7 million bushels and St. Clair county with only slightly less led the state in wheat production (Table 32, page 92). Other counties having an average annual production of over 1.2 million bushels were: Madison, Sangamon, Washington, Montgomery, Macoupin, and Vermilion. During 1954-1956, the leader was St. Clair with 2.1 million bushels, followed by Christian, Madison, Washington, Macoupin, Montgomery, and Sangamon — all producing more than 1.5 million bushels annually.

Production has expanded at less than the state average in Areas 1, 2, 3, and 5; by more than the state average in Areas 4 and 6; and at about the state average in Area 7 (Table 2). Production increased more rapidly in the eastern counties of the state, particularly in the southeastern counties of Area 4 and the northeastern counties of Area 6, than in the older wheat producing Areas 2 and 5 (Table 32, page 92).

Soybeans

An average of about 89 million bushels of soybeans was produced annually in Illinois in the 1949-1953 period (Table 2). This was a 63-percent increase over the 1939-1943 average of about 54 million bushels. The leading county was Champaign with an average crop of 3.7 million bushels annually (Table 33, page 95). Other counties in order of rank with averages of more than 2.5 million bushels annually were: Vermilion, Iroquois, Christian, and Sangamon.

Average annual production during 1954-1956 was over 107 million bushels, a 97-percent increase over the 1939-1943 average. Champaign was still the leading county with an average of just under 5 million bushels, followed by Iroquois, Vermilion, Sangamon, Christian, McLean, and Livingston — all averaging over 3 million bushels.

By areas, soybean production has shown a very marked southward movement. The four northern areas had less than and the three southern areas much greater than state-average increases (Table 2). Area 1 in the north actually averaged 4 percent less annually in 1949-1953 than in 1939-1943 period, and Area 4 gained only 16 percent. In contrast, production doubled in Area 5, and expanded to 4 times its previous level in Area 6 and Area 7. During 1954-1956, production increased considerably above 1939-1943 levels in all areas; in the three southern areas, however, production continued to increase relative to the four northern areas.

Between 1939-1943 and 1949-1953, average annual production increased 34,203,000 bushels. Of this amount, the three southern areas produced three-fourths or 25,370,000 bushels. These areas increased their share of total Illinois production from 23.8 percent in 1939-1943 to 43.2 percent in 1949-1953 (Table 3). They accounted for 27.5 million bushels or only 52 percent of the increase between 1939-1943 and 1954-1956. During 1954-1956 their share of total production, 37.7 percent, decreased somewhat (Table 3).

The changes in production by counties between the periods are shown in Table 33, page 95. Most of the southeastern counties with very large increases started from very low bases. However, the number of counties near or above the million bushel annual production level in the three southern areas increased from 4 during 1939-1943 to 16 during 1949-1953, to 17 in 1954, and to 20 in 1956. This change indicates the extent of the shift to soybeans as a major crop in southern Illinois.

Oats

During 1949-1953, Illinois produced an average of over 137 million bushels of oats annually, only 6 percent more than the average of about 130 million bushels produced annually in the 1939-1943 period (Table 2). LaSalle county with an average of 6.3 million bushels annually was the leading county. McLean and Livingston counties followed with an average annual production of over 5 million bushels. The average annual production during 1954-1956 of over 152 million bushels was 17 percent more than the 1939-1943 average. McLean was the leading county with 7.2 million bushels annually, followed by LaSalle county with 6.4 million, and Livingston with 5.7 million bushels.

Oat production in Illinois is moving in the opposite direction to that of soybeans. Between the 1939-1943 and 1949-1953 periods, production in Areas 1, 2, and 3 in the northern and western parts of the state increased more than the state average; increased only 5 percent in Area 4; and decreased drastically in Areas 5, 6, and 7. The only areas having substantial increases were Area 1 with 20 percent and Area 2 with 18 percent. At the other extreme, production decreased 40 percent in Area 6 and 74 percent in Area 7. The 1954-1956 averages show considerable increases in Areas 2 and 4. Production has recovered somewhat in the three southern areas since 1953, apparently in part because of the introduction of winter oats. These southern areas, however, account for only about 12 percent of total production.

Table 34, page 97, shows the changes in average production by counties for 1939-1943, 1949-1953, and 1954-1956. The changes show less of a pattern for oats than for any of the other grains, some counties in all four of the northern areas showing considerable increases and a few showing decreases. The northern tier of counties and the counties west of the Illinois river and north of Hancock and McDonough counties showed the most consistent pattern of increase for 1939-1943 and 1949-1953. The pattern during 1954-1956 was about the same except that production increased over the 1939-1943 averages in more of Area 4 and in some Area 6 counties.

Production trends

The general trend in the World War II and postwar periods has been one of rapid increase in production of all grains except oats. These increases have not occurred uniformly either for all areas of the state or for all grains, but the changes in the pattern of production between areas in the state have been of small magnitude for corn and oats and of moderate magnitude for wheat and soybeans. The

tendency has been to spread out the area of commercial production of corn, wheat, and soybeans beyond the areas of heaviest prewar concentration. Increases in oat production have been confined largely to the central and northwestern parts of the state.

Table 3 presents a comparison of the percent of total Illinois production by areas, including, in addition to the 1939-1943 and 1949-1953 averages, Crop Reporting Service figures since 1950. Total production figures are included for reference since all crop production except oat production has substantially increased since 1929. The 1954 distribution of production between areas was not considered in assigning trends, because a drouth of 1954 severity is an infrequent occurrence even in southern Illinois where year-to-year variations in yield are relatively greater than they are in central and northern Illinois.

The importance of Areas 5, 6, and 7 in total corn production has been increasing, because production in Areas 2, 3, and 4 has been increasing at a slower rate. The increase in corn production in all southern counties except about ten in the southern tip of the state has been very rapid (Table 31, page 90). These large increases in production in the southern and southeastern counties are the result of the application of fertilizers and modern technical knowledge to the low productivity of soils in these areas. Contrary to popular belief, only the unglaciated seven counties at the extreme southern tip of Illinois have a rough topography. The remainder of the land in Areas 5, 6, and 7 is basically level land, subject to varying stages of stream erosion. After productivity is built up, the level land is well suited to grain production, including the row crops — corn and soybeans.

Wheat production has shifted somewhat from the older producing counties in Area 5 and from northern Illinois to the eastern counties in Areas 4 and 6. The large increase in these areas has been due both to an expansion in acreage and a very large increase in average yields. At the price relationships prevailing in the 1949-1953 period, wheat appears to have been an attractive crop for farmers in both the cash-feed grain and cash-wheat areas. Increased yields were obtained as the result of new varieties and heavy fertilization. Illinois farmers have several alternative uses for their resources. Whether wheat production will continue to expand depends on its price relative to alternative grains and to some extent on the severity of acreage restrictions that may be placed on wheat and other crops.

Soybean production has expanded very rapidly into the south-central and southern counties. Three-fourths of the growth in average

annual production between 1939-1943 and 1949-1953 occurred in the three southern areas. The share of the total Illinois crop grown in these areas increased from an average of 23.8 percent during 1939-1943 to 43.2 percent during 1949-1953. In 1954-1956 the three southern areas accounted for only about 37.7 percent of total production, partly because in 1954 adverse weather cut back yields rather severely. In both 1955 and 1956 southern production was about 40 percent of the whole. Soybeans in southeastern Illinois have been taking over land formerly in oats, redtop, or cowpeas, and land lying idle or in unimproved pasture.

Between 1939-1943 and 1949-1953, oat production declined in the south and southeast where soybeans came in and increased in the north and west where soybeans declined in comparison. Oats have not been very important in most counties in the southern three areas. During 1939-1943, these areas produced less than 15 percent of the total crop, and by 1949-1953 less than 10 percent. Since 1953, production has recovered to about prewar levels in these southern areas. Areas 2 and 4 appear to be increasing their share of total oat production and Areas 1 and 3 decreasing theirs, but the changes are small.

Acreages Harvested

Acreages of the four major grain crops and changes between 1939-1943, 1949-1953, and 1954-1956 are given below.

	Corn	Wheat	Soybeans	Oats	Total
Average acreage, 1939-1943, thousands of acres	7,868	1,484	2,580	3,354	15,286
Average acreage, 1949-1953, thousands of acres	8,925	1,839	3,714	3,482	17,960
Average acreage, 1954-1956, thousands of acres	9,413	1,589	4,402	3,158	18,562
Percent increase, 1949-1953 over 1939-1943	13	24	44	4	18
Percent increase, 1954-1956 over 1939-1943	20	7	71	−6	21

Between 1939-1943 and 1949-1953, the acreage harvested for each of the four crops increased. Between 1949-1953 and 1954-1956, the acreage in both wheat and oats declined. Between the earliest and latest periods, the acreage in corn increased 20 percent and that in soybeans 71 percent. Total acreage increased 21 percent. This increase was made possible because less land was abandoned or devoted solely to pasture, allowed to lie idle, or planted to cowpeas or other crops, or sowed to hay. For corn, wheat, and soybeans, the percent of increase in acreage harvested was less than the percent of increase in produc-

tion and, in spite of a decrease in acreage, oat production increased. Thus all four crops had higher yields in both 1949-1953 and 1954-1956 than in 1939-1943. For Illinois as a whole in the 1949-1953 period, an 18-percent increase in acreage harvested combined with a 5-percent increase in yields resulted in a 24-percent increase in total grain production. By 1954-1956, acreage harvested had increased 21 percent, yields 14 percent, and total production 38 percent above the 1939-1943 levels.

Sales From Farms

Volume sold

An average of 261,619,000 bushels of corn, wheat, oats, and soybeans was sold from Illinois farms annually in the 1939-1943 period (Table 4). Ten years later, (1949-1953), the amount had increased to an average of 397,248,000 bushels annually, a gain of 52 percent. The increase in production between the two periods amounted to about 24 percent, a fact which indicates that almost all of the increase in production was sold. (For sales by counties and areas, see Table 35, page 100.)

Percent sold

An average of about 53 percent of total grain production was sold annually from farms in the 1949-1953 period as compared to an average of only 43 percent annually in the 1939-1943 period (Table 4). Areas 1 and 2 in northern and western Illinois had the lowest percentages (32.4 and 35.9 respectively) and Area 4, the east-central cash-grain area, had the highest percentage (71.1). All areas sold a higher percentage in the 1949-1953 than in the 1939-1943 period.

In the 1949-1953 period, 96.1 percent of the soybeans, 92.5 percent of the wheat, 46 percent of the corn, and 36.8 percent of the oats were sold (Table 4). These percentages were all higher than the comparable 1939-1943 percentages. The growing percent of grain sold indicates a trend toward more specialization in agriculture with grain farmers supplying more feed for livestock producers and feeding less themselves. High support prices on corn and wheat also favor selling rather than feeding on the farm where the grain is grown.

Sales per acre

Grain sales per acre of farmland are a measure of the intensity of cash-grain production. The amount of grain sold per acre ranged from 28 bushels per acre in Champaign, Piatt, and Douglas counties to only 1 bushel per acre in Hardin and Johnson counties, according to the 1949-1953 averages of grain sold (Table 35).

Table 4. — TOTAL FARM SALES AND SALES PER ACRE BY AREAS: Corn, Wheat, Soybeans, and Oats; 1939-1943 and 1949-1953 Averages

Area	Average	Corn	Wheat	Oats	Soybeans	Total	Sales per acre of land in farms, all grains			Percent of total sales, all grains	Sales, percent of total production
							Volume, bushels	Increase of 1949-1953 over 1939-1943, bushels	Increase of 1949-1953 over 1939-1943, percent		
		thousand bu.									
1	1939-1943	19,450	606	5,581	2,416	28,053	6.6	...	..	10.7	26.9
	1949-1953	29,183	724	8,647	2,405	40,959	9.6	3.0	45	10.3	32.4
2	1939-1943	13,548	2,390	2,862	5,526	24,326	5.7	...	..	9.3	29.5
	1949-1953	19,265	3,752	4,502	8,055	35,574	8.4	2.7	47	9.0	35.9
3	1939-1943	33,188	2,344	9,649	6,224	51,405	11.8	...	..	19.6	45.0
	1949-1953	46,390	3,105	13,486	8,658	71,639	16.4	4.6	39	18.0	54.7
4	1939-1943	60,328	3,243	14,618	24,354	102,543	16.5	...	..	39.2	59.4
	1949-1953	87,576	7,280	20,366	29,196	144,418	23.3	6.8	41	36.4	71.1
5	1939-1943	13,793	11,556	2,235	8,770	36,354	6.7	...	..	13.9	44.1
	1949-1953	22,654	15,779	2,766	20,647	61,846	11.4	4.7	70	15.6	55.2
6a	1939-1943	5,483	1,168	643	2,415	9,709	3.0	...	..	3.7	34.5
	1949-1953	9,618	3,687	652	10,995	24,952	7.7	4.7	157	6.3	52.7
6b	1939-1943	2,270	1,294	182	328	4,074	1.8	...	..	1.6	31.1
	1949-1953	3,519	1,857	85	3,201	8,662	3.9	2.1	113	2.2	48.4
7	1939-1943	3,161	1,344	145	505	5,155	4.9	...	..	2.0	45.8
	1949-1953	5,490	1,684	48	1,976	9,198	8.8	3.9	80	2.3	58.0
Total, all areas											
	1939-1943	151,221	23,945	35,915	50,538	261,619	8.4	...	..	100.0	43.0
	1949-1953	223,695	37,868	50,552	85,133	397,248	12.8	4.4	52	100.0	51.8
Percent of total production sold, all areas		*perct.*	*perct.*	*perct.*	*perct.*	*perct.*					
	1939-1943	38.3	83.6	27.6	93.0	43.0	....	...	..	....	....
	1949-1953	46.0	92.5	36.8	96.1	51.8	....	...	..	....	....

The average amount of grain sold per acre of farmland in the various areas for the two periods is shown in Table 4. For the state as a whole, sales in the later period increased almost 53 percent over those in the earlier. Sales increased in all areas; however, the percentage increases were much greater in the three southern than in the four northern areas. The most impressive gains were made in the northern part of Area 6 (Sub-area 6a), where the amount of grain sold per acre (and total volume sold) increased 2½ times. (Table 35, page 100, shows the average grain sales off farms, 1939-1943 and 1949-1953, and the percent of increase over the 1939-1943 average by counties.)

Even though the percentage gains in the southern areas were larger than those in Areas 3 and 4, the bushel gains were about the same or less. The bushel gains were: Area 3, 4.6; Area 4, 6.8; Area 5, 4.7; Area 6a, 4.7; Area 6b, 2.1 and Area 7, 3.9. Areas 3 and 4 are the major source of cash grain in Illinois with a trend toward expansion of this area southward.

Relative importance and trend of sales in various areas

In the 1949-1953 period, corn accounted for 56.3 percent by volume of the grain sold from Illinois farms, soybeans accounted for 21.4 percent, oats about 13 percent, and wheat just under 10 percent (Table 5).

Between the 1939-1943 and 1949-1953 periods, wheat and soybeans slightly expanded their share of total sales of the four grains at the expense of both corn and oats. Soybeans have not been subject to any acreage controls during the latter period, but corn and wheat have been limited to some degree.

Relative changes between areas in their share of corn sales have been small, a fact which indicates a fairly uniform increase over the state in the volume sold.

Area 5, the principal wheat-producing area, has lost some of its position to Areas 4 and 6a, to the north and east of Area 5. The three southern areas, 5, 6, and 7, gave up considerable oat production between 1939-1943 and 1949-1953, and consequently their share of oat sales, already small, decreased further. The northern and western areas, 1 and 2, appear to have increased oat sales by an amount similar to the relative decrease in the southern areas.

The greatest change in sales between areas shows up in soybeans. This follows production very closely since, as noted previously, 96 percent of the soybeans was sold in the 1949-1953 period. The four northern areas had much smaller increases in production; hence increases in sales between 1939-1943 and 1949-1953 were smaller than in the three southern areas. Consequently, the share of the four

Table 5. — DISTRIBUTION OF FARM SALES: By Area and By Grain, 1939-1943 and 1949-1953 Averages

Area	Corn		Wheat		Oats		Soybeans		Total sales, all grains	
	1939-1943	1949-1953	1939-1943	1949-1953	1939-1943	1949-1953	1939-1943	1949-1953	1939-1943	1949-1953
Percent of total sales for each grain, by areas										
1	12.86	13.05	2.53	1.91	15.54	17.10	4.78	2.83	10.72	10.31
2	8.95	8.61	9.98	9.91	7.97	8.90	10.93	9.46	9.30	8.96
3	21.95	20.74	9.79	8.20	26.87	26.68	12.32	10.17	19.65	18.03
4	39.89	39.15	13.54	19.22	40.70	40.29	48.19	34.29	39.19	36.35
5	9.12	10.13	48.26	41.67	6.22	5.47	17.35	24.25	13.90	15.57
6a	3.63	4.30	4.88	9.74	1.79	1.29	4.78	12.92	3.71	6.28
6b	1.50	1.57	5.41	4.90	.51	.17	.65	3.76	1.56	2.18
7	2.09	2.45	5.61	4.45	.40	.10	1.00	2.32	1.97	2.32
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Percent each grain was of total sales of all grains, all areas	57.8	56.3	9.2	9.5	13.7	12.7	19.3	21.4	100.00	100.00

northern areas in total Illinois soybean sales declined from 76 percent to 57 percent, while the share of the three southern areas rose from 24 to 43 percent. The increase in Area 6a is particularly striking, going from about 5 to about 13 percent of the state total.

The upsurge of soybean production and sales in southern and southeastern Illinois has been the largest single change in the postwar grain production and marketing pattern in Illinois.

PART II — MERCHANDISING, PROCESSING, AND STORAGE FACILITIES

LOCAL MARKETING FACILITIES

Two Surveys Basis of Study

A mail survey of all country elevators, requesting information on volume handled, was made in early 1955. An 87-percent response was received. The mail survey was followed with personal interviews with operators of a 10-percent sample of elevators selected at random from each of the seven areas. Its purpose was to secure information on the local marketing facilities, first destinations of grain shipments, and grain transportation.

This personal interview survey was also taken in 1955 and used the elevator's records for its last complete fiscal year. The records included fiscal years ending between June 30, 1954 and June 30, 1955. The records thus included either the 1953 or 1954 crop years or parts of both, depending on the fiscal year used by the sample elevator.

This type of survey precludes trying to reconcile the survey results with production figures for a single crop year, but it is the most practical compromise possible, since surveys depend on the voluntary cooperation of elevator operators.

Information concerning terminals, subterminals, and processors was taken in late 1954 and was secured from all firms known to be operating in Illinois. Like the elevator survey, it utilized the last fiscal year of the firms interviewed. These years ranged from September 30, 1953, to December 31, 1954. These surveys were done in connection with and were partly financed with funds from the North Central Regional Project entitled "Economics of Grain Storage."

Number of Country Elevators

In 1955 approximately 1,274 country elevators, including outside stations, were in operation in Illinois (Table 6). Two or more ele-

Table 6. — NUMBER OF COUNTRY ELEVATORS AND VOLUME HANDLED: By Areas,[a] 1953-1954

Area	Number of elevators handling indicated volumes, bushels					Total	Average volume, bushels	Median volume, bushels	Estimated total volume, bushels
	0-35,000	35,000-150,000	150,000-275,000	275,000-500,000	500,000 and over				
Area 1....	20	34	35	34	15	138	251,780	214,394	34,746,000
Area 2....	9	48	32	26	9	124	231,750	167,768	28,737,000
Area 3 ...	3	47	59	70	41	220	322,109	278,660	70,864,000
Area 4 ..	11	64	177	122	62	436	322,980	318,000	140,819,000
Area 5 ..	5	85	70	40	28	228	265,211	193,124	60,468,000
Area 6 ..	8	33	26	22	9	98	249,024	189,775	24,404,000
Area 7 ..	0	3	10	12	5	30	348,362	315,950	10,451,000
Total .	56	314	409	326	169	1,274	290,807	231,600	370,489,000

[a] Based on mail survey of all elevators.

vators at one location owned by the same firm were enumerated as one elevator. About 660 of these elevators were single-station proprietorships, business corporations, or cooperative corporations; 292 were headquarter stations for two or more elevators, and the remaining 322 were outside stations or line elevators. There were relatively few of the latter in Illinois in 1955.

Volume of Grain Handled

For the 1949-1953 period, an average of 397,248,000 bushels of grain was estimated as sold from farms annually (Table 4). The 1953-1954 crops on which the survey records were based were of about the same size as the average crop of the 1949-1953 period, except that corn and soybean crops in Areas 5 and 6, particularly in Area 5 in 1954, were short. Therefore about 400 million bushels should have been sold from farms. Not all grain went to elevators. Grain surrendered on loan to CCC is counted in crop statistics as grain sold. Grain sold to other farmers, small feed mills, and truckers does not appear in the receipts of local elevators.

The mail survey provided a higher estimate of elevator receipts than the personal interview survey of the 10-percent sample. The mail survey, based on answers from about 87-percent of all country elevators, indicated total receipts in 1953-1954 at 370,489,000 bushels (Table 6). Projecting receipts obtained by personal interviews to represent all elevators indicated that 318,120,000 bushels was handled. Both the mail survey and the interview survey results corresponded rather closely to the Crop Reporting Service estimates of proportions sold by areas. The results indicate that the principal difference between the surveys was in total volume handled. The estimates based on the interview survey were low for corn and wheat in the whole state and for soybeans in Areas 5 and 6.

Both corn and wheat are surrendered on CCC loan and purchase agreements and were probably included in receipts in the mail survey, even though respondents were asked to exclude CCC grain handled for bin sites. About 14 million bushels of wheat and 53 million bushels of corn passed into CCC hands from the 1953 crop during the fiscal years covered by the survey. If this CCC corn and wheat are added to the sales volume from the interview survey, the mail and interview survey figures correspond much more closely.

The number of elevators in Areas 5 and 6 is not large, and the interview survey appears to underestimate soybean sales considerably, even when the drouth of 1954 is taken into consideration. In Area 6, half the sample elevators fell in counties having only about a third of the elevators in the area, a fourth of the total grain sales, and a fifth of soybean sales. Consequently the volume of soybean sales appears underestimated. Underestimating the volume should not seriously affect the validity of estimates of the destination and type of transportation.

In the mail survey, only about 40 percent of the elevator stations indicated a handling volume of 275,000 bushels or more of grain. The percent handling 275,000 bushels or more ranged from 57 percent in Area 7 to 28 percent in Area 2.

The average volume handled by all elevators in the state, according to mail survey responses, was 290,807 bushels (Table 6) and the median volume (as many elevators above this volume as below) was 231,600 bushels. The average volume computed from the personal interview sample was 247,702 bushels. This figure from the personal interviews includes the grain purchased by elevators and the CCC grain stored in elevators, but excludes the CCC grain handled for bin sites.

Much consolidation of elevator facilities (both consolidation of ownership and abandonment of stations) has taken place since the original pattern was set up to handle a horse and wagon trade. The number of elevator stations handling less than 275,000 bushels annually located in all sections of the state indicates the trend can continue.

If we assume that those elevators handling over 500,000 bushels annually average 600,000 bushels, elevators with volumes exceeding 275,000 bushels handled about two-thirds of all grain going through elevators in Illinois, but they represented only 40 percent of the total number. The trend to fewer elevators handling larger volumes should make possible larger earnings for elevator operations, while at the same time giving producers and consumers the benefit of lower aver-

age handling margins than they could have with many more elevators handling smaller volumes. There would be a slight increase in farm-to-elevator transportation costs, but farmers put a higher value on rapid handling than on distance of haul.

Country Elevator Storage Space

Total

A summary of country elevator storage space by areas is given in Table 7. When the survey was completed in 1955, most of the space had turning equipment; much of the considerable space added since, however, appears to be of the flat type in low aerated steel buildings. (For a discussion of space added since 1955, see Appendix II, page 103.)

For the state as a whole, country elevators had a total of almost 72 million bushels of storage space in 1955 (Table 7). Some elevators in Area 1 have been abandoned by their owners. The most frequent reason given for closing these elevators was the shift to trucking directly from the farm. In contrast, in southern Illinois a number of new elevators have been built since 1945 in response to increased production of corn and soybeans in that area.[1]

Age

The average size of elevators was largest in Areas 3, 4, and 5 and smallest in Areas 1, 2, and 6. The fact that median size is above 40,000 bushels in only one area and below 20,000 bushels in the area having the smallest elevators reflects the durability of elevators. The 137 elevators visited during the survey were built at about the following dates:

	Before 1900	1900-1909	1910-1919	1920-1929	1930-1939	1940-1949	Since 1949	Total
Number.....	23	45	31	14	6	13	5	137
Percent.....	17	33	22	10	4	10	4	100

About three-fourths of the elevators visited were built before 1920 and about four-fifths before 1930. Almost all have been added to and modernized in varying degrees, but this method is not a completely satisfactory way of adapting to new conditions. Driveways often remain too low and narrow, new space must be added to the old head house that is usually too low for maximum efficiency, and space for adding high speed legs is limited. Judging from the sample, less than one-fifth of Illinois elevators have been built since trucks came into widespread use.

[1] Schumaier, C. P. Ill. Agr. Exp. Sta. Bul. 595, 1955.

Table 7. — COUNTRY ELEVATOR STORAGE SPACE, 1955; AND BUSHELS HANDLED PER BUSHEL OF STORAGE SPACE, 1953-1954: By Areas

Area	Number of elevators having indicated bushels of storage space						Total number of elevators	Average bushels of storage space	Median bushels of storage space	Total bushels of storage space	Number of bushels handled per bushel of storage space
	0-12,000	12,001-24,000	24,001-48,000	48,001-96,000	96,001-199,999	200,000 and over					
1	38	49	27	13	10	1	138	34,369	19,591	4,743,000	7.33
2	31	36	26	22	8	1	124	42,597	22,333	5,282,000	5.44
3	24	53	71	46	21	5	220	51,064	35,155	11,234,000	6.31
4	17	60	112	155	79	13	436	72,060	56,981	31,418,000	4.48
5	39	46	50	55	29	9	228	60,105	37,920	13,704,000	4.41
6	30	22	18	17	10	1	98	42,633	22,363	4,178,000	5.84
7	5	7	9	5	4	0	30	47,733	32,000	1,432,000	7.30
Total	184	273	313	313	161	30	1,274	56,508	37,802	71,991,000	5.15

Handling volume per bushel of storage capacity

Country elevator space may be used for merchandising or for storage. In the number of bushels handled per bushel of storage space, elevators in the various areas differed considerably (Table 7). Elevators in Areas 4 and 5 handled the least and those in Areas 1 and 7 the most. Considering the number of abandoned elevators in Area 1, it is difficult to explain the high volume handled in that area. Most of the elevators there are wood houses of low capacity that, on a rail basis, cannot compete with more modern operations that often include trucking directly from farm to subterminal. In the high volume handled per bushel of storage space, Area 3, the river area, also shows the influence of direct trucking from farm to subterminal. In Area 7 considerable corn is trucked, and farmers store very little of other crops. This situation probably accounts for the high figure in this area.

Elevators in Areas 4 and 5 have for some years stored beans and to some extent wheat. This practice would account for some of the lower volume handled per bushel of storage space in those areas.

Licensed Storage Space and Space Available for Storage and Inventories

Elevator storage space of almost 43 million bushels was licensed under either Federal or state laws in Illinois in 1955 (Table 8). This represents about 60 percent of total elevator space. Not all licensed space is available for storage, because some space must be reserved for day-to-day receiving and shipping and for turning stored grain. Some space is available for temporary holding and for elevator inventories

Table 8. — ESTIMATED TOTAL STORAGE SPACE, LICENSED STORAGE SPACE, AND SPACE AVAILABLE FOR INVENTORIES AND STORAGE: By Areas, 1955

Area	Total space	Working space	Space available for inventories and storage	Licensed storage space
	bu.	*bu.*	*bu.*	*bu.*
1	4,743,000	2,793,000	1,950,000	1,516,000
2	5,282,000	2,492,000	2,790,000	3,496,000
3	11,234,000	4,094,000	7,140,000	6,286,000
4	31,418,000	7,138,000	24,280,000	21,928,000
5	13,704,000	8,664,000	5,040,000	7,991,000
6	4,178,000	1,468,000	2,710,000	1,474,000
7	1,432,000	559,000	873,000	155,000
Total	71,991,000	27,208,000	44,783,000	42,846,000

in elevators that are not licensed for public storage. Before the space available for storage and inventories was calculated, elevator managers were asked how much of their total space had to be reserved for working space and how much was available for storage of their own and their patrons' grain. The answers indicated elevators in Illinois in 1955 had a little less than 45 million bushels available, after allowance was made for working space. Over half the total was in Area 4. Elevators in Areas 1 and 7 had the least available storage space relative to total space and relative to the amount of grain handled.

For a discussion of the question of adequate country elevator space, see page 50.

GRAIN DISPOSITION FROM LOCAL ELEVATORS

Local Sales and Types of Transportation

Grain purchased by country elevators is sold either locally as grain or as mixed feed, or is shipped out by truck or rail. Very little grain from Illinois country elevators is shipped for terminal or other storage. Much grain moves by water in Illinois, but practically all of it first moves by truck from the farm or country elevator to a river subterminal. A few country elevators in Illinois, mostly on the upper Mississippi where the river is closed part of the year, ship directly by water. These elevators, however, handle a very small proportion of the total amount of Illinois grain that is shipped by water.

Estimates of the amount of grain sold locally and the type of transportation used for shipments are summarized in Table 9. Soybeans and wheat are all shipped, except for the little sometimes kept for seed and the little wheat mixed in scratch feed for poultry.

Percent sold locally

About 15 percent of the corn and about 26 percent of the oats were reported sold back to farmers in the same locality (Table 9). The highest percentages of corn were sold back to farmers in Areas 1, 2, and 5, and the smallest in Area 7. Oats were the same except that Area 6 was also high.

Percents shipped by rail and truck

Almost three-fifths of all grain handled by elevators and about two-thirds of all grain shipped were moved by rail (Table 9). About four-fifths of the wheat and soybeans handled was shipped by rail. Trucking of wheat was important in Area 1 where elevators often get

Table 9. — COUNTRY ELEVATOR GRAIN SALES AND TYPES OF TRANSPORTATION USED FOR SHIPMENTS, 1954

Area	Sold locally		Shipped by rail		Shipped by truck		Total	
				Corn				
	bu.	*perct.*	*bu.*	*perct.*	*bu.*	*perct.*	*bu.*	*perct.*
1	5,560,000	25.2	14,610,000	66.1	1,920,000	8.7	22,090,000	100.0
2	6,840,000	53.9	2,130,000	16.8	3,720,000	29.3	12,690,000	100.0
3	4,420,000	11.3	14,350,000	36.5	20,500,000	52.2	39,270,000	100.0
4	3,300,000	4.4	51,340,000	68.9	19,880,000	26.7	74,520,000	100.0
5	4,180,000	30.2	3,330,000	24.1	6,320,000	45.7	13,830,000	100.0
6	1,390,000	11.7	7,280,000	61.4	3,190,000	26.9	11,860,000	100.0
7	90,000	1.4	2,440,000	38.2	3,850,000	60.4	6,380,000	100.0
Total, all areas	25,780,000	14.3	95,480,000	52.8	59,380,000	32.9	180,640,000	100.0
				Wheat				
1	0	0	50,000	16.7	250,000	83.3	300,000	100.0
2	0	0	2,020,000	78.3	560,000	21.7	2,580,000	100.0
3	120,000	8.0	370,000	24.7	1,010,000	67.3	1,500,000	100.0
4	0	0	7,110,000	92.5	580,000	7.5	7,690,000	100.0
5	0	0	11,600,000	73.5	4,190,000	26.5	15,790,000	100.0
6	0	0	4,690,000	94.7	260,000	5.3	4,950,000	100.0
7	0	0	1,740,000	84.5	320,000	15.5	2,060,000	100.0
Total, all areas	120,000	.3	27,580,000	79.1	7,170,000	20.6	34,870,000	100.0
				Soybeans				
1	0	0	1,810,000	62.2	1,100,000	37.8	2,910,000	100.0
2	0	0	5,670,000	81.2	1,310,000	18.8	6,980,000	100.0
3	0	0	2,640,000	38.6	4,200,000	61.4	6,840,000	100.0
4	0	0	23,250,000	81.9	5,130,000	18.1	28,380,000	100.0
5	0	0	9,000,000	85.1	1,570,000	14.9	10,570,000	100.0
6	0	0	5,510,000	99.0	60,000	1.0	5,570,000	100.0
7	0	0	1,340,000	95.7	60,000	4.3	1,400,000	100.0
Total, all areas	0	0	49,220,000	78.6	13,430,000	21.4	62,650,000	100.0

Table 9. — Concluded

Area	Sold locally		Shipped by rail		Shipped by truck		Total	
				Oats				
	bu.	*perct.*	*bu.*	*perct.*	*bu.*	*perct.*	*bu.*	*perct.*
1	2,750,000	46.7	3,100,000	52.6	40,000	.7	5,890,000	100.0
2	870,000	24.0	2,330,000	64.4	420,000	11.6	3,620,000	100.0
3	2,010,000	21.2	3,700,000	39.0	3,780,000	39.8	9,490,000	100.0
4	1,480,000	8.5	8,170,000	47.0	7,720,000	44.5	17,370,000	100.0
5	2,350,000	91.1	140,000	5.4	90,000	3.5	2,580,000	100.0
6	850,000	87.6	20,000	2.1	100,000	10.3	970,000	100.0
7	[a]	0	40,000	100.0	0	0	40,000	100.0
Total, all areas	10,310,000	25.8	17,500,000	43.8	12,150,000	30.4	39,960,000	100.0
				All grains				
1	8,310,000	26.6	19,570,000	62.8	3,310,000	10.6	31,190,000	100.0
2	7,710,000	29.8	12,150,000	47.0	6,010,000	23.2	25,870,000	100.0
3	6,550,000	11.5	21,060,000	36.9	29,490,000	51.6	57,100,000	100.0
4	4,780,000	3.7	89,870,000	70.3	33,310,000	26.0	127,960,000	100.0
5	6,530,000	15.3	24,070,000	56.3	12,170,000	28.4	42,770,000	100.0
6	2,240,000	9.6	17,500,000	74.9	3,610,000	15.5	23,350,000	100.0
7	90,000	.9	5,560,000	56.3	4,230,000	42.8	9,880,000	100.0
Total, all areas	36,210,000	11.4	189,780,000	59.6	92,130,000	29.0	318,120,000	100.0

[a] Less than 5,000 bushels.

too little to fill cars; in Area 3, adjacent to the river; and in Area 5 where St. Louis provides an outlet. Areas 6 and 7, which are distant from processing outlets, shipped the fewest soybeans by truck.

Slightly over half the corn handled by elevators and about three-fifths of the corn shipped moved by rail. All areas except Area 1 in the north shipped considerable quantities by truck. Three outlets are available for trucked corn — water shipping points, processing plants, and merchant truckers who take it south and east. Area 3 along the river, Area 5 adjacent to St. Louis, and Area 7, where both river and merchant-truck outlets are available, shipped the largest percentages by truck.

Less than half the oats handled by elevators and about three-fifths of the oats shipped moved by rail. Areas 3 and 4 shipped the largest percentages by truck.

For an analysis of trends in grain transportation, see page 74.

First Destinations of Country Elevator Shipments

Elevators were asked for the first destinations of shipments, including both sales and storage. Destinations of CCC shipments of elevator-stored grain were not secured. Grain loaded out of CCC bin sites by elevators was not included in the survey. In most instances, it was possible to secure actual destinations of rail shipments either from the shipping record or from file copies of bills of lading. When neither of these was available, the manager's estimates were used. More estimates were necessary on truck shipments than on rail, since fewer elevators keep detailed records of truck shipments. This is particularly true of merchant-truck destinations, because the elevator operator has little interest in what the trucker does with the grain after it is sold.

Markets for grain vary from year to year in response to relative supplies in different producing areas of the state and country. The major part of the movement is stable, however, because for many uses consumption is relatively constant. Also transportation, processing and storage facilities, and transportation-rate structures change but little from year to year. The estimates in this study represent in part then market responses to particular conditions existing during the movement of the 1953 and 1954 crops, and they can be expected to be merely approximated in the future.

Corn destinations

By rail. The four largest markets for corn were Chicago, St. Louis, Decatur, and Peoria, in that order (Table 10). Decatur processors

Table 10. — CORN DESTINATIONS,[a] 1954-1955

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Total
				thousand bu.				
Used locally	5,560	6,840	4,420	3,300	4,180	1,390	90	25,780
Shipped by rail								
Chicago	8,670	100	9,110	4,060	0	50	130	22,120
St. Louis	0	110	120	8,950	720	3,350	1,060	14,310
Peoria	400	1,520	2,670	6,780	0	250	0	11,620
Indianapolis	0	0	0	270	0	30	0	300
Milwaukee	750	0	670	0	0	0	0	1,420
Decatur	0	0	590	9,590	2,050	820	270	13,320
Illinois processors	720	230	40	8,950	0	40	500	10,480
Illinois transfer points	0	0	20	3,310	0	0	0	3,330
Eastern points	0	0	0	7,110	0	20	40	7,170
Southern points	0	0	0	960	560	2,720	440	4,680
Western points	4,070	170	80	80	0	0	0	4,400
CCC	0	0	1,050	1,280	0	0	0	2,330
Total by rail	14,610	2,130	14,350	51,340	3,330	7,280	2,440	95,480
Shipped by truck								
Chicago	0	0	200	800	0	0	0	1,000
St. Louis	0	0	0	0	3,770	840	0	4,610
Peoria	0	0	7,560	40	0	0	0	7,600
Other river ports	1,320	800	12,700	6,200	370	0	0	21,390
Decatur	0	0	0	160	40	0	0	200
Illinois processors	0	200	0	3,580	380	0	0	4,160
Southern points	0	0	40	7,400	1,440	2,350	2,510	13,740
Indiana	0	0	0	1,300	0	0	1,300	2,600
Missouri and Iowa	600	2,720	0	0	320	0	40	3,680
Southern Illinois	0	0	0	300	0	0	0	300
Illinois transfer points	0	0	0	100	0	0	0	100
Total trucked	1,920	3,720	20,500	19,880	6,320	3,190	3,850	59,380
Total	22,090	12,690	39,270	74,520	13,830	11,860	6,380	180,640
Proportion	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*
Used locally	25.2	53.9	11.3	4.4	30.2	11.7	1.4	14.3
Shipped by rail	66.1	16.8	36.5	68.9	24.1	61.4	38.2	52.8
Shipped by truck	8.7	29.3	52.2	26.7	45.7	26.9	60.4	32.9

[a] In this table and in Tables 11, 12, and 13 some general terms used to describe grain destinations are defined as follows. *Illinois processors* include all Illinois processors and feed mills not located at the terminals listed. *Illinois transfer points* include billings to inspection points without processing facilities, principally Farmer City, Gilman, and Sheldon. *Eastern points* include all destinations north of the Ohio river and east of Illinois. *Southern points* include all destinations east of the Mississippi river and south of the Ohio river. *Western points* include all destinations west of the Mississippi river and all Wisconsin except Milwaukee. *River ports* include all movements to the Illinois river and movements from Area 7 to the Ohio river; Peoria is included in the river port totals for all grains except corn. Corn movements to Peoria by truck are given separately. Some shipments of trucked corn are delivered to processors in the Peoria-Pekin area, but the largest share goes to the river elevators there.

and other Illinois processors were the largest users of rail corn. They drew the bulk of their supplies from Area 4 in east-central Illinois where the principal plants are located. Chicago was the largest single market, drawing its supplies largely from Areas 1 and 3, and secondarily from Area 4. St. Louis, the second largest single market, drew its supplies from Areas 4 and 6. Much of Area 5 was hit by drouth in the crop years covered. In more normal years, this area should supply St. Louis with larger quantities than were estimated here. Peoria, the other large market for Illinois corn, drew its supplies from Areas 2, 3, and 4, adjacent to it.

Over half the corn shipped by rail came from Area 4. Besides supplying the processors in the area, it supplied large quantities for

rail shipment to Chicago, St. Louis, Peoria, and eastern points. Corn shipped by rail from Areas 6 and 7 went principally to St. Louis and southern points. The corn from Area 1, listed under western points, went to Iowa processors and moved counter to the usual pattern because of poor crops to the west of Illinois.

In the 1953 and 1954 crop years included in the survey, only elevators in Areas 3 and 4 reported shipments of elevator-stored corn for CCC. All was shipped by rail. Shipments of bin-site stored corn were excluded.

By truck. The bulk of the corn trucked came from Areas 3, 4, and 5 in central Illinois. Area 3 corn went to the river ports and Peoria; Area 4 corn went to the river ports, processors in the area, and merchant truckers operating to the south. Area 5, plus Area 6, supplied the corn trucked to St. Louis.

Truckers who take corn south pick up their supplies as far south in Illinois as possible. In the period covered by the questionnaire, corn was relatively short in Areas 5 and 6 and truckers had to rely on Area 4 elevators for supplies after the limited supplies in Areas 5, 6, and 7 were exhausted.

Wheat destinations

By rail. Over half the wheat shipped by rail went to St. Louis (Table 11). The largest supplier was Area 5, followed by Areas 4 and 6 respectively. St. Louis was the most important wheat market for all areas except Area 1 in the north and Area 7 in the Wabash valley. Much of the wheat shipped to St. Louis is inspected only and then reshipped at favorable special export rates to New Orleans for export. The small amount of wheat shipped by rail in Area 1 went to Chicago, while in Area 7, mills at Louisville and Evansville provided strong competition for St. Louis.

Illinois mills were the second largest buyers of wheat shipped by rail. The largest mills are at Alton, Beardstown, Chester, and Springfield. A few smaller mills still operate in southern Illinois. Area 5 in the southwest was by far the largest supplier of Illinois mills, but all areas except Area 1 shared in this market.

Elevators reported over 1.5 million bushels of wheat shipped to terminal, subterminal, and country storage other than the receiving elevator, and over 2 million bushels shipped from country elevator storage for CCC. Most of the storage and CCC wheat came from Areas 4, 5, and 6, which had about four-fifths of the wheat handled by elevators.

Table 11. — WHEAT DESTINATIONS,[a] 1954-1955

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Total
				thousand bu.				
Used locally	0	0	120	0	0	0	0	120
Shipped by rail								
For sale								
Chicago	50	360	100	700	80	890	30	2,210
St. Louis	0	450	140	4,120	7,150	2,340	460	14,660
Peoria	0	0	20	0	0	0	0	20
Indianapolis	0	0	0	0	0	0	50	50
Illinois mills	0	310	110	440	1,860	400	40	3,160
Illinois inspection points	0	0	0	650	140	430	0	1,220
Louisville	0	0	0	0	680	0	380	1,060
Evansville	0	0	0	0	0	0	550	550
Other southern points	0	0	0	0	0	270	0	270
Western points	0	400	0	0	120	0	0	520
Eastern points	0	0	0	180	0	0	110	290
For storage								
St. Louis	0	0	0	230	620	0	0	850
Other storage points	0	0	0	90	500	0	120	710
CCC	0	500	0	700	450	360	0	2,010
Total by rail	50	2,020	370	7,110	11,600	4,690	1,740	27,580
Shipped by truck								
For sale								
St. Louis	0	0	0	0	2,510	200	0	2,710
Illinois mills	0	0	20	0	910	60	0	990
Louisville	0	0	0	20	0	0	0	20
Evansville	0	0	0	0	0	0	200	200
River ports	250	560	990	120	0	0	120	2,040
For storage								
St. Louis	0	0	0	100	250	0	0	350
Other points	0	0	0	340	520	0	0	860
Total trucked	250	560	1,010	580	4,190	260	320	7,170
Total	300	2,580	1,500	7,690	15,790	4,950	2,060	34,870
Proportion	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*
Used locally	.0	.0	8.0	.0	.0	.0	.0	.3
Shipped by rail	16.7	78.3	24.7	92.5	73.5	94.7	84.5	79.1
Shipped by truck	83.3	21.7	67.3	7.5	26.5	5.3	15.5	20.6

[a] For definitions of terms used to describe grain destinations, see the bottom of Table 10.

By truck. The one-fifth of wheat trucked went largely to St. Louis, the river ports, and Illinois mills. Smaller quantities were trucked to Louisville and Evansville. A small amount of wheat was trucked to St. Louis and to country points other than the receiving elevator for storage. The shipments to country storage points were usually short hauls between elevators owned by a single firm. Since St. Louis is also a river port and provides a ready outlet for flat tonnage, it is reasonable to assume that most of this wheat was shipped by water for export via New Orleans. Almost two-thirds of all wheat trucked (sold and stored) and four-fifths of truck sales depended on outlets to water transportation.

The need to be relatively close to the limited outlets for trucked wheat determined the destinations from a given area. The Illinois river ports were used in Areas 1, 2, 3, and 4, the northern half of the state. Areas 5 and 6 in the south-central and southern part of the state supplied St. Louis and Illinois mills. Area 7 in the southeast corner of the state used Evansville and Ohio river ports.

Soybean destinations

Most of the soybean destinations shown in Table 12 are self-explanatory. "Other Illinois processors" includes all processor destinations except those at Decatur and the terminals listed. The same destinations for Illinois inspection points, eastern, and southern points were used for soybeans as were used for corn. The stored soybeans listed were those moved from outside stations or small elevators to larger country elevators nearby.

By rail. Nearly four-fifths of the soybeans handled were shipped by rail. Almost half of these went to Decatur and 30 percent went to other Illinois processors not at terminals. A total of about four-fifths of soybeans shipped by rail was routed directly from country elevator to processor.

Almost 5 million bushels were billed to Chicago, but less than 1 million were billed to St. Louis. About 1.2 million bushels were shipped to Indianapolis and eastern processors combined. Most of the beans that went to eastern processors were billed to Indiana destinations outside Indianapolis. Iowa processors took about 2 million bushels, and slightly over 1 million went south — largely for export.

Table 12. — SOYBEAN DESTINATIONS,[a] 1954-1955

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Total
Shipped by rail				*thousand bu.*				
For sale								
Chicago	880	800	440	2,040	310	350	10	4,830
St. Louis	0	0	0	0	580	250	10	840
Indianapolis	0	0	0	450	70	0	20	540
Peoria	0	50	110	30	0	0	0	190
Decatur	310	2,000	1,000	10,090	6,240	3,120	820	23,580
Other Illinois processors	620	860	1,050	10,140	1,390	830	440	15,330
Illinois inspection points	0	0	0	30	0	0	0	30
Iowa processors	0	1,960	40	20	0	20	0	2,040
Eastern processors	0	0	0	230	40	420	0	690
Southern processors and export	0	0	0	220	370	520	40	1,150
Total by rail	1,810	5,670	2,640	23,250	9,000	5,510	1,340	49,220
Shipped by truck								
For sale								
Chicago	0	0	0	160	0	0	0	160
River ports	600	500	3,620	2,590	200	0	0	7,510
St. Louis	0	0	0	0	350	20	0	370
Decatur	0	0	0	260	580	10	0	850
Other Illinois processors	0	810	580	2,120	340	30	0	3,880
Iowa processors	500	0	0	0	0	0	0	500
Evansville	0	0	0	0	0	0	60	60
For storage								
Other area elevators	0	0	0	0	100	0	0	100
Total trucked	1,100	1,310	4,200	5,130	1,570	60	60	13,430
Total	2,910	6,980	6,840	28,380	10,570	5,570	1,400	62,650
Proportion	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*
Shipped by rail	62.2	81.2	38.6	81.9	85.1	99.0	95.7	78.6
Shipped by truck	37.8	18.8	61.4	18.1	14.9	1.0	4.3	21.4

[a] For definitions of terms used to describe grain destinations, see the bottom of Table 10.

The tendency is to buy beans as close to the plant as practicable. The active soybean processing plants in Illinois are between Galesburg and Kankakee on the north and Taylorville on the south. Most of the Illinois crop remains in Illinois for crushing; therefore northern and southern Illinois beans have to move to central Illinois. Of those soybeans that moved to Chicago, most came from Areas 1 through 4, while those that moved to St. Louis came from the three southern areas. Iowa processors bought most of their soybeans in the western part of Area 2 and most of those that moved south by rail for export or crushing came from the southern areas — 5, 6, and 7.

By truck. The freight-rate structure and location of processing plants favor rail transportation of soybeans. As a result, elevators reported only about one-fifth of their soybeans moved by truck.

Slightly over half the beans trucked went to Illinois river ports, including Peoria, and came principally from Areas 3 and 4. Area 3, the river area, had the largest percentage of trucked beans, over 61 percent (Table 12). Decatur and other Illinois processors took most of the remaining trucked soybeans. Only a negligible amount of soybeans was trucked from Areas 6 and 7, which are a considerable distance from both processors and river outlets.

Truck movements to the St. Louis and Chicago terminals were small. Stored beans that were trucked were moved from small to larger elevators for storage within the same area.

Oat destinations

Oat production and marketing in Illinois are diverse. Areas 5, 6, and 7 do not usually have commercial surpluses. This was particularly true in the fiscal years of some of the elevators in the study since the years covered a period of drouth. Part of the oats handled in Areas 5 and 6 was imported for feed. A year following a more normal year might not show such a high proportion used locally in these areas. This probably results in an overestimate of total oats handled since about 600,000 bushels was exported from Area 4 to Areas 5 and 6.

A considerably higher proportion of oats than of corn or soybeans shipped by rail moves into terminals for distribution (Table 13). Also Iowa, which sells about as many commercial oats as Illinois, had a short crop in the year preceding the survey, a situation which permitted Illinois oats to move to Iowa processors.

All areas except the strictly cash-grain Area 4, and Area 7, which had almost no commercial oats, used 20 percent or more of oat receipts for local sales (Table 13). The survey indicates that only about 400,000 bushels was shipped from elevators in Areas 5, 6, and 7.

Table 13. — OAT DESTINATIONS,[a] 1954-1955

	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Total
				thousand bu.				
Used locally	2,750	870	2,010	1,480	2,350	850	(b)	10,310
Shipped by rail								
Chicago	2,470	360	2,120	3,340	0	0	0	8,290
St. Louis	0	60	370	2,760	140	0	20	3,350
Peoria	0	340	260	130	0	0	0	730
Indianapolis	0	0	60	860	0	0	20	940
Decatur	0	0	0	90	0	0	0	90
Springfield	0	0	0	60	0	0	0	60
Gibson City	0	0	0	100	0	0	0	100
Kankakee	0	0	0	50	0	0	0	50
Bloomington	0	0	50	0	0	0	0	50
Other Illinois inspection points	0	250	0	620	0	0	0	870
Eastern points	30	20	80	120	0	20	0	270
Iowa points	600	1,300	730	0	0	0	0	2,630
Louisville, Kentucky	0	0	0	20	0	0	0	20
Nashville, Tennessee	0	0	30	20	0	0	0	50
Total by rail	3,100	2,330	3,700	8,170	140	20	40	17,500
Shipped by truck								
River ports	40	260	3,480	2,220	30	0	0	6,030
St. Louis	0	40	0	10	60	0	0	110
Indianapolis	0	0	0	350	0	0	0	350
Decatur	0	0	0	70	0	0	0	70
Southern states	0	20	120	1,260	0	100	0	1,500
Indiana	0	0	0	2,560	0	0	0	2,560
Michigan	0	0	0	30	0	0	0	30
Missouri	0	100	0	0	0	0	0	100
Louisville, Kentucky	0	0	0	600	0	0	0	600
Keokuk, Iowa	0	0	140	0	0	0	0	140
Near-by feed mills	0	0	40	0	0	0	0	40
Southern Illinois	0	0	0	620	0	0	0	620
Total trucked	40	420	3,780	7,720	90	100	0	12,150
Total	5,890	3,620	9,490	17,370	2,580	970	40	39,960
Proportion	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*	*perct.*
Used locally	46.7	24.0	21.2	8.5	91.1	87.6	.0	25.8
Shipped by rail	52.6	64.4	39.0	47.0	5.4	2.1	100.0	43.8
Shipped by truck	.7	11.6	39.8	44.5	3.5	10.3	.0	30.4

[a] For definitions of terms used to describe grain destinations, see the bottom of Table 10.
[b] Less than 5,000 bushels.

By rail. Chicago, St. Louis, and Iowa points, in that order, were the largest receivers of Illinois oats, with Chicago getting about half the oats shipped by rail. Peoria, Indianapolis, and Illinois inspection points without processing facilities — principally Gilman, Farmer City, and Sheldon — also received substantial quantities of rail oats. Very little was shipped directly to out-of-state destinations from Illinois elevators.

Almost all the oats shipped by rail came from Areas 1 through 4, with Area 4 supplying about half. Area 4 oats went principally to Chicago and St. Louis in about equal amounts, but the Area also supplied oats to the majority of the other destinations except Iowa. Nearly half of the oats going to Iowa came from the western part of Area 2. Smaller amounts went from Areas 1 and 3, the northern and river areas.

By truck. About 30 percent of all oats handled and about 40 per-

cent of oats shipped were moved from elevators by truck (Table 13). About half of the trucked oats moved to Illinois river ports, including Peoria. Small amounts were trucked to St. Louis, Indianapolis, Decatur, Keokuk, and Missouri. Most of the remainder, an estimated 5.3 million bushels or about 40 percent of the trucked oats, was hauled by merchant truckers to southern Illinois and states to the south and east of Illinois, particularly southern Indiana.

Trucking to the river was heaviest from Areas 3 and 4. Merchant truckers picked up most of their supplies in Area 4. Because of the drouth in Missouri and Iowa, Area 2 in western Illinois supplied Missouri trucks with oats.

Summary

The outlets for grain appear to depend on two things: kind of grain and location in the state. Areas 1, 2, 5, and to a lesser extent Area 6, used a large part of their corn and oats for local consumption. In Areas 3, 4, and 7 local sales represented a much smaller proportion of the total amounts of corn and oats handled.

Terminal markets were most important for marketing wheat and oats and least important in marketing soybeans. Over half of Illinois wheat went to St. Louis, with a small part from the northern half of the state going to Chicago and about half that from Area 7 in the Wabash valley going to Evansville and Louisville. Wheat moved by rail except in Area 3, the river area, and Area 5, adjacent to St. Louis.

Oats shipped by rail (about 60 percent of all oats shipped) depended rather heavily on Chicago and secondarily on St. Louis for markets. Half of the oats trucked (about 40 percent of all shipped) went to the Illinois river ports. Most of the remainder was trucked to the south and east by merchant truckers. The bulk of the oats trucked originated in Areas 3 and 4.

Corn, like oats, was trucked in considerable volume. The largest share, however, still went by rail and was dependent on the terminal markets for an outlet. In addition, the interior market for corn shipped by rail was large in Illinois. Area 1 corn went principally to Chicago; Area 3 corn was trucked to the river; Area 4 corn went principally to the interior processors; and corn in Areas 5, 6, and 7 depended on the St. Louis market and the truck trade south. St. Louis was an important outlet for trucked corn, but receipts of Illinois corn trucked to Chicago were small because freight rates are such that it was an advantage to truck corn to the Illinois waterway and bring it to Chicago by barge. (For a discussion of these advantages, see page 71.)

The market for soybeans was largely a rail and interior processor market. Less than 15 percent of the soybeans shipped by rail appeared to go through terminal markets. However, when the barge receipts at Chicago were included, about 20 percent went through terminal markets. Almost half the soybeans moved to Decatur. Most of the one-fifth of the soybeans trucked originated either near the river in Area 3, or in Areas 3, 4, and 5 within short distances of the processing plants in central Illinois.

GRAIN STORAGE, PROCESSING, AND MERCHANDISING FACILITIES BEYOND THE LOCAL LEVEL

Terminal, Subterminal, and Processor Storage Capacity

A total of almost 130 million bushels of storage space was available in Illinois beyond the country level in 1955 (Table 14). About 55 million bushels was in elevator space, predominantly at terminals, and about 75 million bushels at processing plants.

Flour mills, oilseed processors, and malting plants accounted for almost seven-eighths (87 percent) of the total space in processing plants. Corn processors and feed mills whose principal raw grain is corn, typically had only a small amount of bulk-grain storage space relative to their processing capacity.

Grain Processing Capacity

Table 15 summarizes processing capacity (January 1, 1955), processing volume (1954), and the ratio of processing capacity to storage capacity for the major groups of processors. Plants producing more than one product were classified according to their major activity.

The amount of storage space a plant has is related to its basic raw material. The plants primarily using corn have storage space for only a 1- to 3-week supply. The plants using wheat, soybeans, and malting barley have storage space for a 3- to 5-month supply.

The economic reasons for this relationship are found in the pattern of movement of grain off the farm. Corn has been and still is largely stored on farms and moves to market at a fairly constant rate throughout the year. Corn processors are assured of a constant supply and need not acquire large stocks to insure continuous plant operation. A very large share of both wheat and soybeans is sold off farms at harvest; therefore, processors of these grains have found it necessary to acquire stocks when they become available. Malting barley is a specialized crop, not grown in Illinois, which requires specialized

Table 14. — TERMINAL AND SUBTERMINAL ELEVATOR AND PROCESSOR STORAGE CAPACITY, 1955

Item	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Total	Number of plants surveyed
					thousand bu.				
Terminal elevators	38,850	0	3,250	0	9,500	0	0	48,600	18
Subterminal elevators	0	1,334	2,747	2,265	75	0	0	6,421	32
Feed manufacturing	1,800	245	1,560	100	359	25	0	4,089	14
Flour milling	3,600	0	0	0	7,600	140	0	11,340	9
Soybean processing	5,300	1,269	310	37,200	2,240	0	0	46,319	22
Cereal manufacturing	35	0	0	1,700	0	0	120	1,855	5
Distilling	0	0	632	0	0	0	0	632	4
Wet corn processing	1,250	0	750	0	300	0	0	2,300	3
Malting	7,206	0	0	0	0	0	0	7,206	4
All other	0	0	515	0	450	0	0	965	3
Total	55,041	2,848	9,764	41,265	20,524	165	120	129,727	114[a]

[a] Firms were grouped on the basis of their principal operation; seven firms had more than one operation. The other operations were: feed manufacturing, 3; cereal manufacturing, 2; wet corn processing, 1; malting, 1.

Table 15. — PROCESSING CAPACITY, PROCESSING VOLUME, AND STORAGE CAPACITY RATIOS, MAJOR PROCESSING GROUPS

	Number of plants[a]	Processing volume, 1954	Processing capacity, January 1, 1955	Bushels of processing capacity to each bushel of storage capacity
		bu.	*bu.*	*bu.*
Feed manufacturing	14	13,349,000	27,136,000	6.64
Flour milling	9	33,425,000	39,260,000	3.46
Oil seed processing	22	105,965,000	117,820,000	2.54
Cereal manufacturing	5	21,300,000	27,950,000	15.07
Distilling and brewing	4	7,054,000	21,900,000	34.65
Wet corn processing	3	73,750,000	78,500,000	34.13
Malting	4	15,060,000	17,300,000	2.40
All other	3	3,110,000	4,950,000	5.13
Total	64	273,013,000	334,821,000	4.48

[a] Seven plants engage in activities in addition to the one in the group with which they are tabulated as follows: feed manufacturing, 3; cereal manufacturing, 2; wet corn processing, 1; malting, 1.

handling and careful blending. For these reasons, malting plants acquire and store the varieties needed when they become available.

Processors indicated that on January 1, 1955, Illinois plants could handle a total of 334,821,000 bushels of all grains. During the preceding year (or latest fiscal year for which data were available) Illinois processors indicated a total processing-volume of 273,013,000 bushels of all grain.

Feed manufacturers and distillers indicated a processing capacity well above the preceding year's operating volume. Most feed manufacturers had equipment capable of using considerably more grain than was actually used. This is not surprising because feed manufacturing equipment is relatively inexpensive and it is usually preferable to overequip a plant than to underequip it. A part of the over-capacity in the distilling industry reflects the shift from the use of grain-based to petroleum-based alcohols.

The other industries operated much nearer their indicated capacities. Unused capacity in oilseed processing, for example, was mainly in small expeller mills.

Volume of Grain Merchandised

A total of 223,193,000 bushels of grain was reported as merchandised by processors and terminal and subterminal elevators in Illinois in 1953-1954 (Table 16). There was no way to arrive at a net figure

Table 16. — VOLUME OF GRAIN MERCHANDISED AND AVERAGE VOLUME OF STORAGE, 1953-1954

	Storage space	Volume merchandised	Average storage volume	Bushels merchandised per bushel of storage space	Bushels in storage per bushel of storage space, average	Bushels merchandised to each bushel stored
	bu.	*bu.*	*bu.*			
Terminal elevators..	48,600,000	116,700,000	34,545,000	2.4	.7	3.4
Subterminal elevators.....	6,421,000	89,403,000	4,261,000	13.9	.7	21.0
Processors.....	74,706,000	17,090,000	41,849,000	.2	.6	.4
Total	129,727,000	223,193,000	80,655,000	1.7	.6	2.8

that would eliminate duplication. A total of 496,206,000 bushels of grain was handled by agencies beyond the country elevator level in Illinois in 1953-1954 (combined merchandising and processing volumes reported). St. Louis, including East St. Louis, and Chicago terminals combined reported total receipts of about 300 million bushels annually in recent years. Country points reported shipments of about 175 million bushels to central Illinois processors and river ports in 1954-1955. The total checks reasonably with the volume reported from the survey. The subterminal estimate, however, appears too high when compared with estimated country elevator shipments of about 55 million bushels to these destinations and Illinois waterway receipts of about 50 million bushels at Chicago where an estimated 75 percent of the river receipts was shipped. Receipts by type of transportation, kind of grain, and class of receiver are summarized in Table 17.

In Illinois 522,960,000 bushels of grain was received in 1954 at terminal, and subterminal elevators and processing plants. This is more than was reported as merchandised and processed, because it includes storage grain to which warehouse operators did not take title at any time during the year.

About 63 percent was received by rail, 24 percent by truck, and about 13 percent by water (Table 17). About three-fourths of the wheat and soybeans was received by rail, a larger proportion than for any of the other grains.

Four-fifths of the truck receipts was at terminal and subterminal elevators where almost all was reshipped by barge. All water receipts were at terminals with almost all (over 99 percent) at terminal elevators. Processing plants of all classes except distilling plants depended very largely on rail transportation for their grain supplies. Distillers are less dependent on the milling-in-transit privileges that are important to most other grain consuming industries.

Table 17. — TERMINAL, SUBTERMINAL, AND PROCESSOR RECEIPTS: By Grain and Type of Transportation; 1954; Thousands of Bushels

	Terminal	Sub-terminal	Feed manufac-turing	Flour milling	Oilseed process-ing	Cereal manufac-turing	Distill-ing	Wet corn process-ing	Malting	All other	Total	Percent
Wheat												
Rail	18,624	906	920	38,762	2,410	.....	.....	.....	.....	164	61,786	74.2
Truck	7,622	5,667	310	1,822	1,319	120	.....	.....	.....	41	16,901	20.3
Barge	4,279	.....	.....	356	.....	.....	.....	.....	.....	.....	4,635	5.5
Total	30,525	6,573	1,230	40,940	3,729	120	.....	.....	.....	205	83,322	100.0
Corn												
Rail	29,771	5,737	5,256	2,195	24,293	12,050	2,724	54,000	.....	2,615	138,641	54.5
Truck	15,096	53,293	1,573	150	1,689	2,570	2,960	.....	.....	255	77,586	30.5
Barge	38,045	.....	.....	180	.....	.....	.....	.....	.....	.....	38,225	15.0
Total	82,912	59,030	6,829	2,525	25,982	14,620	5,684	54,000	.....	2,870	254,452	100.0
Soybeans												
Rail	5,736	65	306	700	92,092	200	.....	.....	.....	.....	99,099	76.9
Truck	4,166	8,955	193	195	10,862	60	.....	.....	.....	.....	24,431	19.0
Barge	5,330	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,330	4.1
Total	15,232	9,020	499	895	102,954	260	.....	.....	.....	.....	128,860	100.0
Oats												
Rail	6,605	1,150	3,864	375	522	.....	.....	.....	.....	80	12,596	44.2
Truck	793	5,253	288	25	272	.....	.....	.....	.....	80	6,711	23.5
Barge	9,199	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,199	32.3
Total	16,597	6,403	4,152	400	794	.....	.....	.....	.....	160	28,506	100.0
Other												
Rail	875	.....	422	314	217	.....	1,369	.....	14,200	1,075	18,472	66.4
Truck	.....	.....	11	6	.....	.....	.....	.....	.....	.....	17	.1
Barge	9,331	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,331	33.5
Total	10,206	.....	433	320	217	.....	1,369	.....	14,200	1,075	27,820	100.0
Total grain												
Rail	61,611	7,858	10,768	42,346	119,534	12,250	4,093	54,000	14,200	3,934	330,594	63.2
Truck	27,677	73,168	2,375	2,198	14,142	2,750	2,960	.....	.....	376	125,646	24.0
Barge	66,184	.....	.....	536	.....	.....	.....	.....	.....	.....	66,720	12.8
Total	155,472	81,026	13,143	45,080	133,676	15,000	7,053	54,000	14,200	4,310	522,960	100.0

Utilization of Terminal Elevator and Processor Storage Space

Table 18 summarizes the average volume of grain in storage at terminal and subterminal elevators and processing plants in 1954.

On the basis of 129,727,000 bushels of available space, an average storage volume of 80,655,000 bushels (Table 16) represents an occupancy of about 62 percent. Data indicate elevator space was about 70 percent occupied, while processor space was about 56 percent occupied. These are figures for only one year and are principally the estimates of a responsible executive in each firm interviewed rather than a careful computation of monthly inventories. They must, therefore, be regarded as subject to both estimating error and yearly variations when applied to any particular year or situation.

Apparently there was no shortage of storage space at the processor- and terminal-elevator level in 1954. The greater percent of occupancy achieved by terminal elevators appears to have been due largely to CCC stocks. The stored grain inventory was divided as follows in 1954:

	Percent of average inventory stored						
	Own account	Processors	Country shippers	CCC	Farmers	Others	Total
Terminal and subterminal elevators	40	1	0	40	12	7	100
Processors	80	1	2	11	2	4	100
All firms	69	1	1	19	5	5	100

A much higher proportion of elevator space than of processor space was devoted to CCC and farmer storage. CCC storage was most often reported as long-term storage of a year or more. Proces-

Table 18. — AVERAGE STORAGE VOLUME OF TERMINAL AND SUBTERMINAL ELEVATORS AND PROCESSORS: By Grains, 1954; Thousands of Bushels and Percent

Commodity	Terminal and subterminal elevators		Processors		Total	
	thousand bu.	*perct.*	*thousand bu.*	*perct.*	*thousand bu.*	*perct.*
Wheat	18,278	47.1	10,128	24.2	28,406	35.2
Corn	9,779	25.2	7,993	19.1	17,772	22.0
Soybeans	1,979	5.1	17,618	42.1	19,597	24.3
Oats	3,725	9.6	1,548	3.7	5,273	6.6
Other	5,045	13.0	4,562	10.9	9,607	11.9
Total	38,806	100	41,849	100	80,655	100

sors stored predominantly for their own accounts although some space was rented to CCC.

Wheat occupied the most space because much of it was long-term CCC storage. Corn moved fastest in storage, seldom being held over 3 months. Soybeans and wheat in commercial channels averaged an intermediate position of 3 to 6 months. Soybeans were largely carried by processors rather than by terminal elevators. Besides wheat, barley was the only other grain to be stored for long periods. Special varieties may be stored as long as 2 years by malt processors. Oats did not occupy much space at the terminal level. They are apparently stored at the farm and local elevators in Illinois.

ADEQUACY OF STORAGE CAPACITY

Facilities Available

Grain storage beyond the farm is available at the country elevator and wholesale levels (space at wholesale levels includes that at terminal and subterminal elevators and that in processor plants). In addition the CCC has extensive facilities. These are entirely flat storage that must be filled, turned, and emptied with portable handling equipment. Consequently its potential use is economically limited to long-term storage of which CCC is almost the only user. (For space available by areas and by facilities, see Table 19.)

A total of 174,510,000 bushels of commercial storage space was available at country and wholesale levels January 1, 1955, consisting of about 44,783,000 bushels of country space (total country elevator space, 71,991,000 bushels) and 129,727,000 bushels of wholesale space.

Table 19. — ESTIMATED TOTAL SPACE AVAILABLE AT COUNTRY ELEVATOR AND WHOLESALE LEVELS FOR STORAGE AND INVENTORIES, AND CCC BIN SPACE: By Areas; January 1, 1955; Thousands of Bushels

Type of facility	Area							
	1	2	3	4	5	6	7	Total
Terminal and subterminal elevators	35,850	1,334	5,997	2,265	9,575	....	....	55,021
Processors	19,191	1,514	3,767	39,000	10,949	165	120	74,706
Space available for storage and inventories at country elevators[a]	1,950	2,790	7,140	24,280	5,040	2,710	873	44,783
Total available storage space	56,991[b]	5,638	16,904	65,545	25,564[c]	2,875	993	174,510
CCC bin space[d]	8,500	10,000	30,000	70,000	17,000	4,000	2,000	141,500

[a] Estimated from country elevator sample.
[b] 54,741,000 bushels at Chicago.
[c] 10,487,000 bushels at East St. Louis.
[d] Space by areas estimated from data by crop reporting districts.

Of the wholesale space, about 54,741,000 bushels were at Chicago and 10,487,000 bushels at East St. Louis. There was more CCC space than wholesale commercial space, with 141,500,000 bushels of CCC-owned space being in place in Illinois on January 1, 1955.

Possible Storage Needs

The amount of storage space needed beyond the farm is a function of the amount of grain sold and the distribution of sales throughout the year. There are two peaks in Illinois grain sales — one at corn and soybean harvest in October and November and a lesser one at wheat and oats harvest in July.

A large percentage of all grain except wheat stays within the state for its ultimate use. With the aid of some broad assumptions and Crop Reporting Service estimates of the timing of sales off farms, an estimate can be made of storage space needed beyond the farm level, exclusive of CCC stocks.

For the sake of simplicity, assume uniform use of grain sold during the year and assume the pattern of sales off farms is uniform over the state. (There is evidence that sales in southern Illinois were more seasonable in 1952-1953 than in the state as a whole and they will probably continue to follow a more seasonable pattern because of the lack of farm storage and more hazardous farm-storage conditions.[1] This more seasonable pattern of sales would require slightly more country elevator handling space there per bushel of sales but would not affect total required storage space in Illinois.)

The percent of grain sold each month for the crop years 1949-1953 is shown below.

	Corn	Wheat	Soybeans	Oats
July	..	79	..	30
August	..	8	..	14
September	..	3	14	4
October	14	2	40	4
November	14	1	10	4
December	7	1	7	5
January	8	1	7	7
February	6	1	4	6
March	8	1	5	8
April	7	1	3	6
May	8	1	4	6
June	7	1	3	6
July	7	..	2	..
August	8	..	1	..
September	6	..	..	..

[1] Schumaier, C. P. Ill. Agr. Exp. Sta. Bul. 595, 1955.

Table 20. — VOLUME OF MONTHLY SALES ESTIMATED FROM 1949-1953 AVERAGE TOTAL SALES AND AVERAGE RATES OF SALE: Thousands of Bushels

Item	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Area 1													
Corn	2,043	2,334	1,751	4,086	4,086	2,043	2,335	1,751	2,334	2,043	2,334	2,043	29,183
Wheat	572	58	22	14	8	8	7	7	7	7	7	7	724
Oats	2,594	1,211	347	347	347	432	605	518	692	518	518	518	8,647
Soybeans	48	24	337	962	240	169	169	96	120	72	96	72	2,405
Total	5,257	3,627	2,457	5,409	4,681	2,652	3,116	2,372	3,153	2,640	2,955	2,640	40,959
Area 2													
Corn	1,348	1,541	1,156	2,697	2,697	1,348	1,541	1,156	1,542	1,349	1,541	1,349	19,265
Wheat	2,964	300	113	75	37	38	37	38	37	38	37	38	3,752
Oats	1,351	630	180	180	180	225	315	270	361	270	270	270	4,502
Soybeans	161	81	1,128	3,222	805	564	564	322	403	242	322	241	8,055
Total	5,824	2,552	2,577	6,174	3,719	2,175	2,457	1,786	2,343	1,899	2,170	1,898	35,574
Area 3													
Corn	3,247	3,711	2,784	6,495	6,495	3,247	3,711	2,784	3,711	3,247	3,711	3,247	46,390
Wheat	2,453	249	93	62	31	31	31	31	31	31	31	31	3,105
Oats	4,046	1,888	540	539	540	674	944	809	1,079	809	809	809	13,486
Soybeans	173	87	1,212	3,463	866	606	606	346	433	260	346	260	8,658
Total	9,919	5,935	4,629	10,559	7,932	4,558	5,292	3,970	5,254	4,347	4,897	4,347	71,639
Area 4													
Corn	6,130	7,006	5,255	12,261	12,261	6,130	7,006	5,255	7,006	6,130	7,006	6,130	87,576
Wheat	5,751	582	218	146	73	73	73	73	73	73	73	72	7,280
Oats	6,110	2,851	815	815	815	1,018	1,425	1,222	1,629	1,222	1,222	1,222	20,366
Soybeans	584	292	4,087	11,678	2,920	2,044	2,043	1,168	1,460	876	1,168	876	29,196
Total	18,575	10,731	10,375	24,900	16,069	9,265	10,547	7,718	10,168	8,301	9,469	8,300	144,418

Table 20. — Concluded

Item	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
Area 5													
Corn	1,586	1,812	1,359	3,172	3,172	1,586	1,812	1,359	1,812	1,586	1,812	1,586	22,654
Wheat	12,465	1,262	473	315	158	158	158	158	158	158	158	158	15,779
Oats	830	387	111	110	111	138	194	166	221	166	166	166	2,766
Soybeans	413	206	2,891	8,259	2,065	1,446	1,445	826	1,032	619	826	619	20,647
Total	15,294	3,667	4,834	11,856	5,506	3,328	3,609	2,509	3,223	2,529	2,962	2,529	61,846
Area 6													
Corn	919	1,051	788	1,839	1,839	920	1,051	788	1,051	920	1,051	920	13,137
Wheat	4,380	444	166	111	55	56	55	56	55	56	55	55	5,544
Oats	221	103	29	30	29	37	52	44	59	44	45	44	737
Soybeans	283	142	1,987	5,678	1,420	994	994	568	710	426	568	426	14,196
Total	5,803	1,740	2,970	7,658	3,343	2,007	2,152	1,456	1,875	1,446	1,719	1,445	33,614
Area 7													
Corn	384	439	329	769	769	385	439	329	439	384	439	385	5,490
Wheat	1,330	135	50	34	17	17	17	17	17	17	17	16	1,684
Oats	14	7	2	2	2	2	3	3	4	3	3	3	48
Soybeans	40	20	277	790	198	138	138	79	99	59	79	59	1,976
Total	1,768	601	658	1,595	986	542	597	428	559	463	538	463	9,198
Total, all areas													
Corn	15,657	17,894	13,422	31,319	31,319	15,659	17,895	13,422	17,895	15,659	17,894	15,660	223,695
Wheat	29,915	3,030	1,135	757	379	381	378	380	378	380	378	377	37,868
Oats	15,166	7,077	2,024	2,023	2,024	2,526	3,538	3,032	4,045	3,032	3,033	3,032	50,552
Soybeans	1,702	852	11,919	34,052	8,514	5,961	5,959	3,405	4,257	2,554	3,405	2,553	85,133
Total	62,440	28,853	28,500	68,151	42,236	24,527	27,770	20,239	26,575	21,625	24,710	21,622	397,248

Table 21. — CUMULATIVE SALES LESS CUMULATIVE USE: By Grains and By Areas; Average Farm Sales, 1949-1953; Thousands of Bushels

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Area 1												
Corn	778	680	....	1,654	3,308	2,919	2,822	2,141	2,043	1,654	1,556	1,167
Wheat	512	510	471	425	373	320	266	212	157	103	49	....
Oats	1,874	2,364	1,991	1,617	1,243	955	839	637	608	406	200	....
Soybeans	177	....	137	898	938	906	874	769	689	561	457	329
Total	3,341	3,554	2,599	4,594	5,862	5,100	4,801	3,759	3,497	2,724	2,262	1,496
Area 2												
Corn	514	450	....	1,092	2,184	1,926	1,862	1,412	1,349	1,092	1,028	771
Wheat	2,651	2,638	2,438	2,200	1,924	1,649	1,373	1,098	822	547	271	....
Oats	975	1,229	1,033	837	641	490	429	323	308	202	96	....
Soybeans	583	....	456	3,007	3,140	3,032	2,924	2,574	2,305	1,875	1,525	1,094
Total	4,723	4,317	3,927	7,136	7,889	7,097	6,588	5,407	4,784	3,716	2,920	1,865
Area 3												
Corn	1,235	1,080	....	2,629	5,258	4,639	4,484	3,402	3,247	2,628	2,473	1,854
Wheat	2,194	2,184	2,018	1,821	1,593	1,365	1,137	909	681	453	225	....
Oats	2,920	3,682	3,096	2,509	1,923	1,471	1,289	972	925	608	291	....
Soybeans	629	....	490	3,231	3,375	3,259	3,143	2,767	2,478	2,016	1,640	1,178
Total	6,978	6,946	5,604	10,190	12,149	10,734	10,053	8,050	7,331	5,705	4,629	3,032
Area 4												
Corn	2,335	2,043	....	4,963	9,926	8,758	8,466	6,423	6,151	4,963	4,671	3,503
Wheat	5,144	5,119	4,730	4,269	3,735	3,201	2,667	2,133	1,566	1,065	531	....
Oats	4,413	5,567	4,685	3,803	2,921	2,242	1,970	1,495	1,427	952	477	....
Soybeans	2,141	....	1,654	10,899	11,386	10,997	10,607	9,342	8,369	6,812	5,547	3,990
Total	14,033	12,729	11,069	23,934	27,968	25,198	23,710	19,393	17,513	13,792	11,226	7,493

Table 21. — Concluded

	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Area 5												
Corn	603	527	....	1,274	2,586	2,266	2,190	1,661	1,585	1,283	1,207	905
Wheat	11,150	11,097	10,255	9,255	8,098	6,941	5,784	4,627	3,470	2,313	1,156	....
Oats	599	755	635	514	394	301	264	199	189	124	59	....
Soybeans	1,510	....	1,170	7,708	8,052	7,777	7,501	6,606	5,917	4,815	3,920	2,818
Total	13,862	12,379	12,060	18,751	19,130	17,285	15,739	13,093	11,161	8,535	6,342	3,723
Area 6												
Corn	348	304	....	744	1,488	1,313	1,269	962	918	743	699	524
Wheat	3,918	3,900	3,604	3,253	2,846	2,439	2,032	1,626	1,220	814	407	....
Oats	159	200	167	136	104	79	70	53	51	34	17	....
Soybeans	1,041	....	804	5,299	5,536	5,347	5,158	4,543	4,070	3,313	2,698	1,941
Total	5,466	4,404	4,575	9,432	9,974	9,178	8,529	7,184	6,259	4,904	3,821	2,465
Area 7												
Corn	142	123	....	311	622	549	530	401	382	308	289	216
Wheat	1,189	1,183	1,092	985	861	737	613	489	365	241	117	....
Oats	10	13	11	9	7	5	4	3	3	2	1	....
Soybeans	141	....	112	737	770	743	716	630	564	458	372	266
Total	1,482	1,319	1,215	2,042	2,260	2,034	1,863	1,523	1,314	1,009	779	482
Total, all areas												
Corn	5,955	5,207	....	12,667	25,372	22,370	21,623	16,402	15,675	12,671	11,923	8,940
Wheat	26,758	26,631	24,608	22,208	19,430	16,652	13,872	11,094	8,281	5,536	2,756	....
Oats	10,950	13,810	11,618	9,425	7,233	5,543	4,865	3,682	3,511	2,328	1,141	....
Soybeans	6,222	....	4,823	31,779	33,197	32,061	30,923	27,231	24,392	19,850	16,159	11,616
Total	49,885	45,648	41,049	76,079	85,232	76,626	71,283	58,409	51,859	40,385	31,979	20,556

Multiplying the percents sold each month (as shown above) by the average annual sales off farms for the 1949-1953 period gives the estimated sales pattern by months for the period (Table 20). October is the peak sales month for all areas except Areas 5 and 7 where wheat sales in July create the largest peak.

For a compilation of the differences between assumed use and estimated sales, see Table 21. This difference is a measure of the stocks that would logically have to find storage space off farms. For all districts, the peak stocks would occur in October, November, and December and would taper off until July when wheat and oats cause a secondary build-up of stocks.

Relation of Available Space to Handling and Storage Needs

Given the present pattern of sales off farms, the 1949-1953 volume of sales and possible storage loads, how adequate is present storage capacity to: (1) handle sales at the country level; and (2) carry the storage load with country and wholesale capacity combined?

Country elevator capacity in the state is slightly larger than the average of estimated sales in October, the peak month (Table 22). The only significant departures from this average are in Area 4, where capacity exceeds sales in the peak month by about one-fifth, and in Area 6, where it is only a little over half of the sales in the peak month. There were ample handling facilities at the country level

Table 22. — TOTAL GRAIN SALES FROM FARMS, TOTAL SALES PER BUSHEL OF ELEVATOR CAPACITY, PEAK MONTH SALES, AND PEAK MONTH SALES PER BUSHEL OF ELEVATOR CAPACITY: By Areas; 1949-1953 Average; Thousands of Bushels

Area	Total country elevator capacity	Total farm sales	Peak month sales	Total sales per bushel of elevator capacity	Peak month sales per bushel of elevator capacity
1	4,743	40,959	5,409	8.64	1.14
2	5,282	35,574	6,174	6.72	1.17
3	11,234	71.639	10,559	6.38	.94
4	31,418	144,418	24,900	4.60	.79
5	13,704	61,846	15,294	4.51	1.12
6	4,178	33,614	7,658	8.05	1.83
7	1,432	9,198	1,768	6.42	1.23
Total	71,991	397,248	68,151	5.52	.95

because not all grain sold goes to country elevators, and even in the area with the shortest handling capacity, elevators under 1949-1953 conditions would have had between 2 and 3 weeks to get the grain shipped. Under most conditions, this is ample time, although some problems do arise when the bulk of the harvest arrives in a single week and rail cars are in short supply.

Total space for storage and inventories

There must be ample space at the country and wholesale elevator levels for carrying anticipated storage stocks so that those country elevators with limited storage space can make prompt shipments. (For a summary of the country elevator and wholesale storage space available, see Table 19.) The country elevator space available for storage and inventories was estimated from answers to the survey questionnaires as previously reported. All wholesale storage space (terminal, subterminal, and processor) is assumed to be available, although a small amount is required for working space.

Country elevator space for storage and inventories

Country elevators had a little over half enough space to store the peak load as computed from 1949-1953 average sales and 1955 storage space (Table 23). They had about four-fifths enough space to store the average computed load. Between areas there was a great deal of difference in the amount of space available at the country level. Areas 5 and 6 had only about one-fourth enough space for the computed peak load, while Area 4 had almost seven-eighths enough space. The most storage space available at country elevators was in the heavy grain-producing central and east-central parts of the state and the least in the southern and southeastern parts.

Total space for storage and inventories

In the whole state, including Chicago and East St. Louis, almost 175 million bushels of space was available in 1955 for storage and inventories (Table 23). (For space added since 1955, see Appendix II, page 103.) This was slightly over twice as much as would be needed for the computed peak load and about 3¼ times as much as would be needed for the computed average load. Less than half enough total space for the computed peak load was available in Areas 1, 6, and 7. Very little storage space, either country elevator or wholesale, was available in these three Areas. Area 3, however, had 1⅖ and Area 4 had 2⅓ as much space as would be needed for their

Table 23. — COUNTRY ELEVATOR SPACE FOR STORAGE AND INVENTORIES, TOTAL COUNTRY ELEVATOR AND WHOLESALE SPACE, AND SPACE PER BUSHEL OF STORAGE LOAD: By Areas; Sources, Tables 19 and 21

Area	Average computed storage load	Peak computed storage load	Country elevator space available for storage and inventories	Total country elevator and wholesale storage space	Country elevator, storage capacity per bushel		All elevators and processors, storage capacity per bushel	
					Average load	Peak load	Average load	Peak load
				thousand bu.				
1	3,632	5,862	1,950	2,250[a]	.54	.33	.62	.38
2	5,031	7,889	2,790	5,638	.55	.35	1.12	.71
3	7,617	12,149	7,140	16,904	.94	.59	2.22	1.39
4	17,338	27,968	24,280	65,545	1.40	.87	3.78	2.34
5	12,672	19,130	5,040	15,077[b]	.40	.26	1.19	.79
6	6,349	9,974	2,710	2,875	.43	.27	.45	.29
7	1,444	2,260	873	993	.60	.39	.69	.44
Total	54,083	85,232	44,783	174,510[c]	.83	.53	3.22	2.04

[a] Less Chicago.
[b] Less East St. Louis.
[c] Includes Chicago and East St. Louis.

computed peak loads. Areas 2 and 5 were in an intermediate position with about three-fourths enough total space to store computed peak loads. Area 1 is tributary to the large amount of space at Chicago and Area 5 can draw on space at St. Louis. Thus only Areas 2, 6, and 7 have less than enough total space to store their computed peak loads. In grain sales per acre, these areas are the lowest in Illinois (Table 4, page 24). Their grain must move largely to central Illinois processors or St. Louis in any case. Therefore the lack of storage space within the areas should not be a serious problem either for farmers or elevator operators, because with an over-all ample supply of storage space, some agency will always be looking for grain to store and will provide a ready outlet for all grain offered.

Space at Chicago and East St. Louis is available for grain other than from Illinois. However, even if a generous storage-space allowance of 30 million bushels is made for use of out-of-state grain, there is still nearly twice (1.7 times) as much space available for Illinois grain as the computed peak storage requirements for the 1949-1953 sales pattern.

Space occupied in 1954

Processors, terminal, and subterminal elevators reported an average volume of 81 million bushels stored in 1954 (Table 18). Nineteen per-

cent was stored for CCC and another 5 percent for farmers largely on loan agreements that pass to the CCC upon their expiration.

Country elevators reported average inventory and storage stocks of about 28 million bushels in 1954, of which 8 to 10 million bushels were stored for the CCC and about 9 million for farmers. The remainder was largely the ordinary residual inventory, carried either voluntarily or involuntarily in the course of doing business. Thus in rough terms, country elevators carried stored-grain inventories consisting of about one-third for farmers, one-third for the CCC, and one-third for themselves.

The total stocks carried beyond the farm level in 1954 were about 110 million bushels, or about double the computed average storage requirements. Taking out about 30 million bushels of CCC stocks and allowing perhaps 15 million bushels of stocks from other states carried at terminals would leave average holdings of 65 million bushels of Illinois grain in commercial channels. This figure agrees reasonably well with the computed average storage requirements of 56 million bushels.

Storage Space Distribution and Storage Requirements

Most country elevators and river and terminal elevators often become temporarily filled, because transportation is not immediately available during a period of favorable harvesting weather. It appears, however, that storage space in Illinois is adequate to handle peak requirements of ordinary year-to-year storage of Illinois grain with space left over at terminals for imported grain.

Storage space is in shortest supply in southeastern Illinois, where there is enough handling space to hold over half the sales during the peak month. This should be time enough to allow most operators to ship considerable quantities. There is something over 2 bushels of space at the country elevator and wholesale levels for each bushel of the peak month's computed storage-space requirements. The most space is available in central Illinois. In the state as a whole, total country elevator space is slightly larger than the average required by estimated sales in the peak month and should not be a problem. Since almost all soybeans and much corn moves into central Illinois for processing, the lack of extensive facilities for longer term storage does not appear to be a serious problem from the point of view of finding a roof for the grain. However, lack of storage space in a particular local market may be a serious problem to individual farmers who want to hire storage space for holding their grain.

Quality of Handling and Storage Facilities

Even though total storage space is adequate for present levels of grain production and sales, construction of additional new storage space is not ruled out. As was pointed out in the discussion of Local Marketing Facilities, pages 27 to 32, almost two-thirds of the country elevators in Illinois were built before 1929. Almost all have been added to and modernized in varying degrees, but old elevators nearly always have lower handling capacity and higher operating costs than modern concrete houses of the same capacity. Consequently, new, larger, and more efficient elevators will often be needed in areas with otherwise adequate storage capacity concentrated in old, outmoded facilities. (For a discussion of storage added since 1955, see Appendix II, page 103.)

CCC Storage Space Requirements

There can be no attempt here to assess the need for CCC storage space. The amount depends on the relative levels of the support price and market price, on acreage controls, and on other factors. The average inventory of off-farm stocks of grain in Illinois in 1954 as reported by the Illinois Cooperative Crop Reporting Service was 161,815,000 bushels, or considerably above the 110 million bushels estimated from the country elevator and wholesale firm surveys. The report includes but does not separate the CCC stocks. Country elevators must, of necessity, engage in the storage and handling of CCC grain. The nature of the activity is such that any investments made for participating in the program should have alternative uses in the event the program is greatly curtailed or ended entirely. Payments to participating elevators for both handling and storage have in general been liberal.

PART III — GRAIN TRANSPORTATION

Transportation cost is a major cost in marketing grain, for grain is a relatively cheap, bulky, and nonperishable commodity. Movement from farms to local elevators by truck or wagon is a direct cost to the farmer because practically all grain is priced to the farmer f.o.b. the local elevator. A little over 10 percent of all grain in the state was sold locally, about 60 percent was shipped by rail, and about 30 percent by truck (Table 9). Thus, of the grain shipped, about two-thirds was shipped by rail. About half the grain shipped by truck went to river

elevators, and the remainder to a number of outlets including long distance truckers, terminal markets, and various processors.

Since 1946, rail rates have more than doubled. Partly because of this rise in rates and partly because of larger, more efficient trucks and increased outlets for barged grain, there appears to be a gradual trend away from rail transportation to truck and truck-barge transportation. The completion of the St. Lawrence Seaway is expected to open the way for grain exports from Chicago and increase truck and truck-barge receipts there.

(For a summary of grain movements in Illinois, see pages 36-44.)

BY RAIL

Railroad Rate Structure

Rate making

Railroads make their own rates, subject to approval by state and interstate commerce commissions. Few important rate changes are made without long, extensive hearings in which many people intervene. Interests in each market favor proposals that will strengthen their competitive position and oppose those that will weaken it. A general pattern of freight rates has grown up, and this pattern is changed only after considerable discussion before regulatory agencies. General rate increases are usually applied as percentages of existing rates in an attempt to preserve the rate relationships existing before the increase; however, these percentage increases widen absolute differences between regions and markets.

Rate increases since 1945

The Illinois Commerce Commission granted 14 general increases in freight rates between 1946 and 1958. The basic rate from the cash-grain area in east-central Illinois (Champaign) to Chicago and St. Louis was more than doubled, going from 12 cents per 100 pounds in 1946 to 26 cents in 1958. The basic rate to New York likewise more than doubled, going from 38 cents to 81 cents.

Illinois farmers received averages of $1.05 and $1.10 per bushel of corn in 1944 and 1945, respectively, and $1.38 and $1.35 in 1955 and 1956 (or the equivalent of $1.92 per 100 pounds in 1944-1945 and $2.44 in 1956-1957). The New York freight rate has increased from about one-fifth of the 1944-1945 farm price to about one-third of the 1956-1957 price.

Effects of rising transportation costs on the competitive position of Illinois grain

Illinois feed grains ordinarily move south and east. Increased transportation costs must be reflected in some combination of increased prices in consuming areas and reduced prices in producing areas. Increased prices in consuming areas may reduce consumption of imported feeds, cause substitutions, such as grass for hay and corn, and induce more production in areas nearer the consuming area. The higher cost may reduce prices in the producing area, cause a shift to feeding a larger share of a product such as corn in order to obtain a product with a higher value such as meat to ship out of the producing area, and cause a substitution of soybean production in place of corn.

The market supply of feed grains in Illinois, Indiana, and Ohio is usually inadequate to supply the total demands in the usual market areas for Illinois corn so corn has to move from west of the Mississippi river. This western grain carries higher rates than Illinois grain and prices in these areas should be affected more than in Illinois; that is, there should be more change from sales to feeding. Conversely, Indiana and Ohio grain should be affected less than Illinois grain.

In other words, higher freight rates tend to narrow the supply area for a product like corn by making an alternative more attractive, for instance feeding. Figures on production and use of corn in Illinois (page 14 and following), support this argument, for they show a trend toward Illinois supplying a smaller share of U. S. corn sold off farms while producing a larger share of total U. S. production. Also, in the postwar period Indiana and Ohio appear to be increasing the amount of surplus corn they have available for the eastern and southern markets. These two states increased their sales of corn from 10.6 percent of prewar U. S. total sales to 13.9 percent of the postwar, while between the prewar and postwar periods their share of corn produced for grain changed little, from 13.3 to 13.9 percent of the U. S. total.

Besides narrowing the supply areas, increasing rail rates tend to stimulate other types of transportation such as barge and truck transportation unless these forms of transportation also increase their rates in the same proportion. Rail movement of corn across the Ohio river to the southeast has slowed to a trickle, while movement by barge and truck has greatly increased. The rail rates from the corn belt to the South and Southeast have been high historically on a mileage basis. The postwar rate increases have widened the margin available for truckers and barge lines who engage in the trade.

In order of economy, mileage considered, the cheapest form of transportation for a bulky, nonperishable product like grain is by water, by rail, and by truck. From most inland points water cannot be used, but two types of inland water transportation do affect the marketing of Illinois grain: (1) shipment from Chicago to the lower lake ports and in smaller volume down the St. Lawrence river; and (2) shipment by way of the Mississippi, Ohio, and Illinois waterways. The quantity of Illinois grain moving via the Ohio and via the Mississippi above St. Louis is small, but receipts on the Mississippi at St. Louis and on the Illinois waterway have expanded to major movements. The movement on the Illinois is primarily corn to Chicago from an area formerly served by rail, and its rapid rise illustrates the fact that water is cheaper than rail.

In spite of the above developments, the bulk of Illinois grain still moves by rail for several reasons: (1) most of the state does not have ready access to inland navigable rivers; (2) railroads are usually cheaper than trucks except on some short hauls or where grain is a backhaul for other more expensive cargo; (3) the volume of grain to be moved is so large that only railroads have the facilities to handle it; and (4) even short rail hauls are usually part of through rail hauls which are covered by proportional or transit rates.

Special Rail Rate Arrangements

Proportional rates

A proportional rate is illustrated by the Illinois Proportional or I. P. rate into Chicago which is part of the basic New York rate. Chicago is used as an example, but many other similar cases exist where the rate into a market is part of a through rate. The I. P. rate from Champaign into Chicago is 26 cents per 100 pounds (1958) and from Champaign to New York 81 cents. Grain may be shipped from Champaign to Chicago, be bought there, stored, blended, etc., and then reshipped on the balance of the rate from Champaign to New York for 55 cents. In other words, the I. P. rate from most Illinois points to Chicago is the New York rate from that point less 55 cents, the uniform proportional reshipping rate from Chicago to New York.

To be shipped from Chicago on the balance of the through rate, grain must, with certain exceptions, have been shipped into Chicago by rail. Otherwise it must pay a higher rate to move out of Chicago. For example, grain trucked to Chicago must be used locally (manufactured and the products trucked out, or fed at the stockyards, etc.),

shipped out by lake, or pay a higher outbound rail rate than if shipped in by rail on an I. P. rate. An exception is made for grain shipped in by lake or river barge. Such grain may move out on rail proportional rates.

The inbound portion of the through rate is higher per ton-mile than the through rate. Assume a point 100 miles from Chicago and 800 miles from New York with a 26-cent I. P. rate to Chicago and an 81-cent rate to New York. Ton-mile rates would be 5.2 cents to Chicago and 2.0 cents to New York. Although grain cannot be shipped from Chicago to eastern markets on the lower proportional rate unless it has been shipped to Chicago on the I. P. rate, the effect of these high ton-mile inbound rates is to permit barge elevators to draw grain from a wider territory than would be the case with lower rail rates. As a result, there has been a gradual decline in the proportion of grain moving by rail to Chicago (Table 25, page 76).

Table 24. — BARGE RATES AND ILLINOIS PROPORTIONAL RAIL RATES TO CHICAGO FROM RIVER OR NEARBY POINTS: July, 1958; Cents per Hundred Pounds

Shipping point	Barge rates[a]	Illinois Proportional rail rates[b]	Difference between Illinois Proportional rail rates and barge rates
Joliet	3.9	18.5	14.6
Morris	4.4	20.5	16.1
Seneca	4.7	20.5	15.8
Ottawa	5.0	21.0	16.0
La Salle Peru	5.2	26.0	20.8
Spring Valley	5.2	26.0	20.8
Hennepin	5.7	26.0[c]	20.3
Henry	6.2	26.0	19.8
Lacon	6.2	26.0	19.8
Chillicothe	6.2	26.0	19.8
Peoria	7.3	26.0	18.7
Pekin	7.3	26.0	18.7
Havana	7.6	26.0	18.4
Beardstown	8.0	27.5	19.5
Naples	8.6	27.5	18.9
Montezuma	8.6	32.0[d]	23.4
Kampsville	8.6	32.0[d]	23.4
St. Louis-East St. Louis	9.6	32.0	22.4

[a] A. L. Mechling Barge Lines, Inc., tariff effective January, 1958.
[b] Illinois Proportional rates effective Feb. 15, 1958.
[c] Monronts.
[d] Pearl.

Transit rates

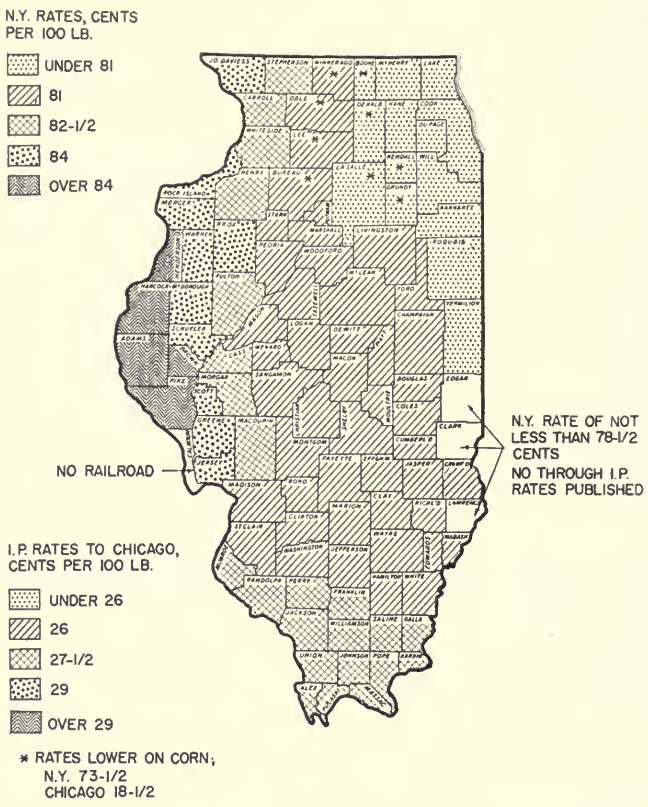
Transit rates also cause grain to move by rail. There are various kinds of transits; one type important in grain marketing is milling-in-transit. The railroads grant transit privileges at certain points where grain may be unloaded, stored, processed, and then at least part of the product reshipped on a through rate that applies from point of origin to destination. In Illinois this procedure can be illustrated by soybeans. Assume soybeans originate at a point 50 miles south of Decatur where the New York rate on soybean meal is 81 cents per 100 pounds and the local rate from this point to Decatur is, for example, 10 cents per 100 pounds. The processor pays the inbound freight when he receives the beans. He processes them and gets 80 pounds of soybean meal per 100 pounds of beans. When he ships this meal to points taking the New York rate, he pays 81 cents per 100 pounds, the rate from the point of origin of the soybeans to the destination of the meal. But he can apply on the freight bill 80 percent of the inbound freight or 8 cents. The processor has to absorb the cost of the inbound freight on the weight of the oil and any loss in weight in processing.

In this example, the processor recovers 80 percent of the inbound freight from the shipper to the mill. If the soybeans were delivered to the processor by truck, however, most of the trucking cost would be lost because the rate on the soybean meal would usually be as high from the processing plant as from the point of origin. As distances from the mill increase, inbound rail freight charges do not ordinarily increase as fast as trucking charges. Therefore trucked soybeans must usually come from the vicinity of the plant where rail rates relative to truck costs are high. Soybean meal sold to trucks at the plant or to be mixed into feed at the plant and distributed by truck may, of course, be processed from trucked soybeans.

Basic grain rates in Illinois

New York rates are important in determining variations in grain prices within Illinois because there is a large movement of Illinois grains to the east. In general, rates increase with distance from New York. (For New York rates from county seats, 1958, see Fig. 6.) Important points are: (1) lower rates around Chicago, extending south to include Danville in Vermilion county; (2) the large block of counties with an 81-cent rate; and (3) the gradual increase in rates to the west and south.

If all grain prices were based on New York rates, a differential of



Approximate domestic grain through rail rates to New York and Illinois proportional rates to Chicago from county seats or nearby towns in cents per 100 pounds, February, 1958.

For a large part of Illinois, the domestic rate to New York is 81 cents and the Illinois proportional rate to Chicago is 26 cents per 100 pounds, or the New York rate less the Chicago-New York proportional of 55 cents. In some counties, however, the rate is more and in others less.

In those counties in which the New York rate is less than 81 and the Illinois proportional rate less than 26 cents, the specific rates are: 73½ and 18½ — Lake, Kane, Cook, DuPage, Will, Kankakee; 75½ and 20½ — DeKalb, Kendall, Grundy, Iroquois, Vermilion; 76 and 21 — McHenry, LaSalle; 78½ and 22½ — Boone; 78½ and 26 — Crawford.

In those counties in which the New York rate is more than 84 and the Illinois proportional rate more than 29 cents, the specific rates are: 85 and 30 — Henderson; 87 and 32 — Hancock, Adams, Brown, and Pike. (Fig. 6)

about 7½ cents per bushel (13½ cents per 100 pounds) would exist between the prices for corn in Will and Adams counties; that is, if a country point in Will county was bidding $1.25 per bushel, an Adams country point could not bid above $1.17½ per bushel and compete. In 1946, before the series of post World War II rate increases began, the spread between these two counties was only 4½ cents. Thus the possible maximum spread in price per bushel of corn within Illinois, due to the cost of shipping corn to eastern points, has increased by about 3¼ cents since 1946. The influence of these differences in rates on local prices is indicated by the fact that it is usually possible to draw grain for barge shipment on the river farther from north and west of the river than from south and east of the river. With a higher basic freight rate, inland elevators west of the river cannot bid as much as those east of the river.

Rates to other eastern points are set at differentials above and below those to New York. In 1958, when the New York proportional rate was 55 cents, proportional rates to other points were:

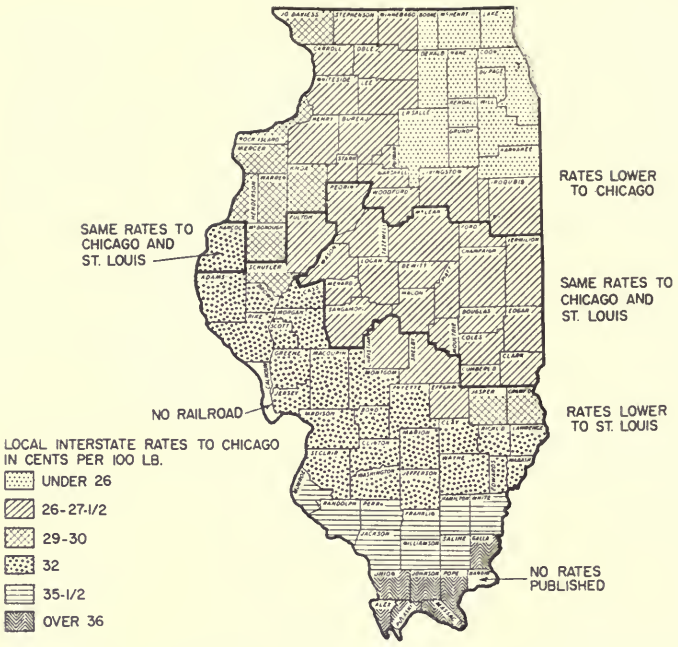
	cents		*cents*
Boston	57	Norfolk	51½
Buffalo	42½	Philadelphia	52½
Montreal	67½	Pittsburgh	42½

These are rates on grain for domestic use. Shipped from Chicago all grain for export except soybeans carries a 35-cent proportional rate to New York and Boston and a 33½-cent proportional to Baltimore and Norfolk. Shipped by way of Philadelphia, the rate is 32 cents per 100 pounds. The rate on soybeans for export is 12 cents more to Boston, New York, and Philadelphia, and 12½ cents more to Baltimore and Norfolk.

Chicago rates

There are various classes of grain rates to Chicago. Two of the more important are the Illinois proportional (I. P.) and local interstate rates. The I. P. rates are the New York rates less 55 cents and are shown in Fig. 6. Their pattern is the same as that of the New York rates.

The local interstate rates that apply on rail shipments to Chicago where I. P. rates do not apply are shown in Fig. 7. For the northern counties they are usually the same as the I. P. rates. They become up to 12 cents higher than the I. P. rates in southern counties, but little grain moves to Chicago from this area.



Approximate local interstate rates on wheat to Chicago from county seat or nearby towns, in cents per 100 pounds, February, 1958. Corn, oats, and soybeans often take lower rates in the northern third of the state where rail rates must compete with barge rates.

In those counties in which the rate is under 26 cents, the specific rates are: 14½ — DuPage; 17½ — Kane; 18½ — Lake, Will, Kankakee; 19½ — DeKalb; 20½ — McHenry, Kendall, Grundy; 21 — LaSalle; 22 — Boone.

In those counties in which the rate is 26-27½, the specific rates are: 27 — Whiteside; 27½ — Stephenson, Carroll, Henry, Fulton, Christian, Shelby, Effingham; in all others, the rate is 26 cents.

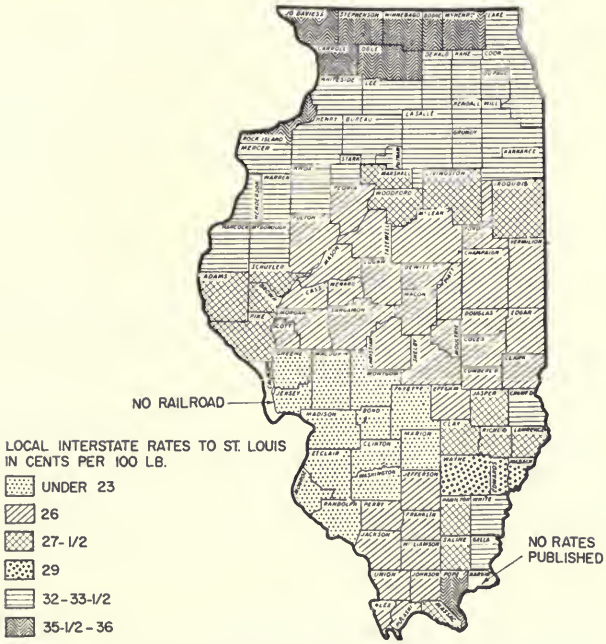
In those counties in which the rate is over 36 cents, the rate is 37 cents in Union, Johnson, and Pope, and 38 cents in Alexander, Pulaski, and Massac counties. (Fig. 7)

Two other classes of rates, neither of which can be applied to through rates, exist. They are local intrastate rates and special rates on corn, oats, and soybeans. The local intrastate rate is usually the same as the local interstate rate and is not shown on a separate map. The special rates on corn, oats, and soybeans are strictly local and apply only in northern Illinois counties affected by barge competition. Corn shipped on them must go out by lake or be used in Chicago. Apparently very little grain originates using these rates.

St. Louis rates

The rates on grain to St. Louis in 1958 are shown in Fig. 8. From northern Illinois the local interstate rates to St. Louis are higher than to Chicago because the distances are greater to St. Louis. In an area in east-central and central Illinois (most or all the stations in 20 counties) the rates are the same to either destination. South and west of this area the rates to St. Louis are lower. The St. Louis and I. P. rates are the same over an area that extends farther south than the local interstate rate.

Grain prices at St. Louis and Chicago are closely related. The reason is obvious at least for corn and oats. Both markets draw corn



Approximate local interstate rates to St. Louis-East St. Louis from county seat or nearby towns in cents per 100 pounds, February, 1958.

In those counties in which the rates are under 23 cents, the specific rates are: 15 — Madison; 16½ — St. Clair, Monroe; 18½ — Jersey; 20½ — Bond; 21 — Clinton, Marion, Randolph, Fayette, Macoupin, Montgomery; and 22 — Greene.

In those counties in which the rates are 32-33½, the rate is 32 cents in all except Mercer, Henry, and Gallatin where it is 33½.

In those counties in which the rate is 35½-36, the rate is 35½ in all except Jo Daviess. (Fig. 8)

and oats at the same freight rate from a considerable area having a large surplus. Both draw their supplies from areas where they have a freight advantage or compete on equal terms. They will buy in areas where they are at a freight disadvantage only when one market has a high enough price to absorb the higher freight costs.

In 1958, proportional rates from St. Louis to New York were 9 cents per 100 pounds higher than rates from Chicago. Thus it is considerably cheaper to ship Illinois grain to eastern points through Chicago. For Illinois grain, the area of distribution from St. Louis is to the southeast, south, and southwest rather than to the east.

Peoria rates

From a number of counties in the western and west-central parts of the state, local rates to Peoria are less than to either St. Louis or Chicago (Fig. 9). For grain moving east, the New York rates are the same through both Peoria and Chicago. The main effect of the lower local rates is to make Peoria in its immediate tributary territory a good market for corn for processing into products that do not earn transit privileges.

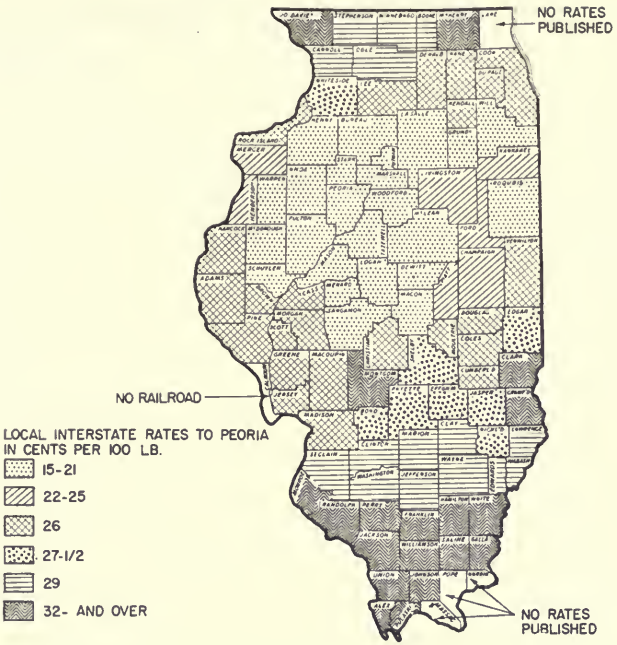
Southern rates

Grain moving by rail to the south and southeast takes combination rates; that is, a rate to an Ohio river crossing plus a specified rate beyond. These rates are so high that little grain destined for southern or southeastern areas now moves by rail. For example, the rate from central Illinois stations to Macon, Georgia, is about $1.06 per 100 pounds. Much grain is trucked from central and southern Illinois where highway mileage to the southern markets is comparatively short. Increasing amounts also appear to be moving by barge to Memphis where a rail proportional rate can be applied to the southeast, and into Tennessee river ports.

Special export rail rates to Gulf ports

In a large part of southern and central Illinois, most railroads participate in special export rates on corn and wheat to Gulf ports. These special rates have not been extended to soybeans.

An export rate of 37 cents per 100 pounds to Gulf ports applies from most Illinois stations with a 26-cent rate to St. Louis. This means that grain consigned to St. Louis on the 26-cent rate may be reconsigned and shipped for export for only 11 cents more freight.



Approximate local interstate rates on grain to Peoria from county seat or nearby towns, in cents per 100 pounds, April, 1958.

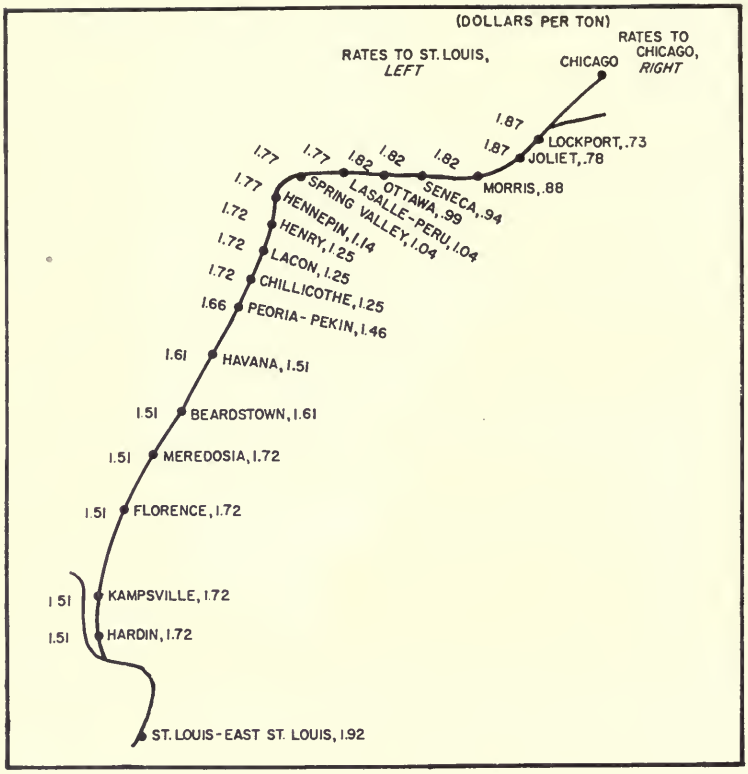
In those counties in which the rate is 15-21 cents, the rates are: 15 — Stark, Peoria, Woodford; 16½ — Tazewell; 18½ — McLean, Fulton; 20 — Mason; 20½ — Logan, Knox, Warren, Bureau; 21 — McDonough, Schuyler, Menard, Sangamon, Macon, DeWitt, LaSalle, Grundy, Will, and Iroquois.

In the counties in which the rate is 22-25 cents, the rates are: 22 — Putnam, Marshall, Livingston, Ford, Piatt, and Champaign; 22½ — Mercer, Henderson; 25 — Kankakee.

In the counties in which the rate is 32-33½, the rate is 33½ in all except Jo Daviess and Lawrence where it is 32. (Fig. 9)

BY BARGE AND TRUCK

Illinois grain producers are fortunate to be served by an inland waterway system that has been canalized to Omaha on the Missouri, to Minneapolis on the Mississippi, to Pittsburgh on the Ohio, Knoxville on the Tennessee, and to Chicago on the Illinois. An export outlet is already available at New Orleans, and in 1959 an expanded outlet will be available at Chicago through the St. Lawrence Seaway. For Illinois farmers, by far the most important of these waterways is



Approximate barge rates to St. Louis and Chicago from points on the Illinois waterway in dollars per ton (500 tons minimum), January, 1958. (Fig. 10)

the Illinois river which flows through a producing area with large grain surpluses, particularly corn (Fig. 10). It is ice-free the year around and affords outlets for large amounts of grain both at Chicago and lower Mississippi river points.

Rates on barge grain are considerably less than comparable rail rates. After considerable litigation, the right of eastern railroads to move barged grain (called ex-river) out of Chicago on the same proportional rates as ex-rail grain was upheld in the courts. This very important decision made ex-barge and ex-rail corn equally valuable for merchandising purposes at Chicago. In response to a large available supply of grain and to large volume outlets at Chicago terminal elevators, an extensive system of river elevators with the necessary water transportation equipment has been built up since the Illinois waterway was opened in 1933.

Relative Costs to Chicago

Except for points on the lower Illinois near St. Louis, the barge rate to Chicago reaches its maximum advantage over rail rates at LaSalle and Spring Valley where the I. P. rail rate first reaches 26 cents per 100 pounds (Table 24, page 64, and Fig. 10). Delivered at Chicago, corn shipped by barge from Spring Valley costs 5.2 cents and by rail 26 cents per 100 pounds — a differential of 20.8 cents per 100 pounds or 11.6 cents per bushel in favor of barge shipment. This differential must cover the cost of trucking to the river and the margin of the river elevator. The margin decreases in both directions from Spring Valley; it is about 9 cents at Morris and about 10½ cents at Peoria-Pekin. Below Peoria, comparisons should be made with St. Louis rates since the movement of both barge and rail corn is more likely to be south than north.

Allowing 3 cents per bushel for river elevator margins leaves a margin of about 9 cents for trucking at Spring Valley, 7½ cents at Peoria-Pekin, and 6 cents at Morris.

Approximate trucking rates per bushel of corn in 1956 were:

Miles hauled	*Cents per bushel*
6-10	2.5
11-15	3.0
16-20	3.3
21-25	3.6
26-30	3.9
31-35	4.3
36-40	4.6
41-45	4.9
46-50	5.8

This scale of rates indicates corn could be trucked about 15 miles for 3 cents, 30 miles for 4 cents, 45 miles for 5 cents, and over 50 miles for 6 cents a bushel. It may be possible to truck grain 60 miles or more at LaSalle and Spring Valley and sometimes much farther[1]; however, the bulk of the barged grain comes from much closer to the river. The largest share comes from elevators within 30 miles of the river where grain, particularly corn, is often trucked directly to the river and the inland country elevator acts mainly as a broker, guaranteeing ownership and making settlement to the farmer for a nominal margin.

[1] The difference between the river bid and the rail bid at competing rail points varies. The difference is wider when export demand at the Gulf is strong relative to domestic rail outlets than it is when domestic rail demand is strong and export demand is slow.

LaSalle and Spring Valley can ordinarily draw grain from farthest away; however, they draw farther from the north and west than from the south and east. Two principal reasons account for this situation: (1) rail freight rates increase going away from the river to the north and west, but they are the same or less than the rates at LaSalle and Spring Valley to the south and east (Fig. 12); and (2) the internal market for grain to processors and millers is much more extensive south of the river than north and west of it.

Other Outlets for Illinois River Barge Grain

Grain may move south on the Illinois into the Mississippi. Here it must compete with grain from Mississippi and Missouri river points for available markets. For wheat and soybeans, the principal outlet is for export at New Orleans.

The barge rate from St. Louis to New Orleans is about 15 cents per 100 pounds, or about 22 cents per 100 pounds less than the special export rail rates from most southern Illinois inland points. This is the equivalent of about 12 cents a bushel on corn. If there were no other costs, corn could be trucked into St. Louis from points out to where the trucking charges become 12 cents. Actually, however, the limit for extensive trucking to St. Louis appears to be about 60 to 70 miles where trucking charges are 7 to 8 cents a bushel.

In addition to export at New Orleans, corn can move southeast either by way of the Tennessee river, or by rail proportional rates out of Memphis. The barge rate to Memphis is about 11.7 cents per 100 pounds from Peoria, and 8 cents per 100 pounds from St. Louis. The rail proportional rate from St. Louis to Memphis is 24 cents per 100 pounds. This amount added to the 26-cent inbound rate from Peoria makes a rail rate of 50 cents per 100 pounds. Even from counties near St. Louis with a 21-cent inbound rate, the rail rate is 47 cents, far above the barge rate of 8 cents.

TRENDS IN GRAIN TRANSPORTATION

No recent surveys of destination or methods of transportation comparable to the present study are available for comparison to establish trends. A 1949 mimeographed publication of the University of Illinois Department of Agricultural Economics estimated the following amounts of the 1948-1949 movement of grain were trucked: corn, 15 percent; soybeans, 10 percent; wheat, 35 percent; and oats, 15 percent. Excluding, as in the earlier study, that sold locally, the

1953-1954 truck movement was more nearly as follows: corn, 40 percent; soybeans, 20 percent; wheat, 20 percent; and oats, 40 percent.

Wheat is the only grain for which a decrease in truck movement has been indicated. There may be less truck movement of wheat than formerly since almost all the small flour mills that formerly operated in the southern Illinois wheat area have closed. Also, any of the 1948-1949 estimates, including those for wheat, may have been wrong for they represented judgment rather than statistical information. The fact that most 1953-1954 estimates were larger by a considerable degree indicates a considerable increase in movement by truck since 1949. The trends in receipts at major markets and the increase in movement by water, which is dependent on trucking, also indicate an increasing movement by truck.

TRENDS IN RECEIPTS AT MAJOR ILLINOIS MARKETS

The two principal terminal markets for Illinois grain are St. Louis and Chicago. The influence of Peoria as a terminal is limited. In addition, there is an interior market consisting of a number of processors scattered in a number of the principal central Illinois cities, including Bloomington, Champaign, Danville, Decatur, Gibson City, Kankakee, Paris, Springfield, and Taylorville.

Three trends are apparent at major markets in Illinois: (1) increasing receipts, particularly of corn, at Chicago from the Illinois waterway; (2) increasing receipts, and particularly truck receipts, at St. Louis; and (3) a tendency in recent years for the terminal markets, including Peoria, to get a smaller share of the inspected grain receipts and the interior markets to get a larger share.

Chicago Receipts

Receipts of grain at Chicago by kinds of transportation, 1932-1957, are shown in Table 25. Receipts have been close to or over 200 million bushels annually since 1943; before 1943, the receipts in most years were considerably below 200 million bushels. During the last five years, the railroads have accounted for an average of 68 percent of total receipts; the waterway, 22 percent; the lake, 4 percent; and trucks, 6 percent.

The pattern of grain receipts at Chicago reflects the growth of truck and truck-barge transportation. Railroads still bring in about as much grain as they did in the 1930's, but their percentage of the total

Table 25. — RECEIPTS OF GRAIN AT CHICAGO BY KINDS OF TRANSPORTATION, 1932-1957

Year	By railroad		By lake		By Illinois waterway		By truck		Total, bushels
	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	
1957	145,293,000	63.8	10,605,000	4.7	59,326,000	26.0	12,599,000	5.5	227,823,000
1956	131,046,000	63.2	4,279,000	2.1	58,634,000	28.3	13,360,000	6.4	207,319,000
1955	147,378,000	74.3	1,657,000	.8	37,598,000	19.0	11,769,000	5.9	198,402,000
1954	141,567,000	73.9	4,914,000	2.6	32,452,000	17.0	12,493,000	6.5	191,426,000
1953	131,094,000	66.0	15,416,000	7.8	43,001,000	21.7	8,938,000	4.5	198,449,000
1952	148,382,000	63.4	23,020,000	9.8	53,376.000	22.8	9,307,000	4.0	234,085,000
1951	131,962,000	63.5	18,347,000	8.8	50,054,000	24.0	7,728,000	3.7	208,091,000
1950	138,746,000	65.4	4,563,000	2.2	59,931,000	28.3	8,715,000	4.1	211,955,000
1949	164,739,000	70.8	10,991,000	4.7	50,607,000	21.7	6,618,000	2.8	232,955,000
1948	161,341,000	79.4	2,990,000	1.5	35,890,000	17.7	2,865,000	1.4	203,086,000
1947	229,285,000	86.1	.....	...	34,473,000	12.9	2,555,000	1.0	266,313,000
1946	190,003,000	87.5	870,000	.4	22,282,000	10.2	4,111,000	1.9	217,266,000
1945	180,041,000	87.0	9,899,000	4.8	16,360,000	7.9	653,000	.3	206,953,000
1944	149,090,000	70.4	47,771,000	22.5	14,355,000	6.8	638,000	.3	211,854,000
1943	186,187,000	86.7	14,715,000	6.8	12,788,000	6.0	1,173,000	.5	214,863,000
1942	153,791,000	87.6	2,687,000	1.5	15,944,000	9.1	3,168,000	1.8	175,590,000
1941	147,684,000	84.5	4,584,000	2.6	17,697,000	10.1	5,000,000	2.8	174,965,000
1940	134,151,000	81.4	4,829,000	2.9	19,966,000	12.1	5,861,000	3.6	164,807,000
1939	142,168,000	85.4	1,541,000	.9	17,084,000	10.2	5,885,000	3.5	166,678,000
1938	197,918,000	91.7	2,576,000	1.2	11,822,000	5.5	3,374,000	1.6	215,690,000
1937	125,892,000	82.0	22,524,000	14.7	4,595,000	3.0	489,000	.3	153,500,000
1936	123,596,000	89.7	10,685,000	7.8	1,816,000	1.3	1,668,000	1.2	137,765,000
1935	75,948,000	82.2	13,534,000	14.6	1,554,000	1.7	1,385,000	1.5	92,421,000
1934	97,904,000	86.8	12,467,000	11.0	1,154,000	1.0	1,359,000	1.2	112,884,000
1933	131,936,000	92.3	9,192,000	6.4	137,000	.1	1,761,000	1.2	143,026,000
1932	117,497,000	99.6	338,000	.3	.....	....	173,000	.1	118,008,000

Source: Board of Trade of the City of Chicago, Annual Reports.

has decreased from about 90 percent to 65 to 70 percent. After its opening in 1933, receipts of grain carried by the waterway grew rapidly to a prewar peak of 19,966,000 bushels in 1940. Waterway receipts then declined during the war years, resuming their upward trend in 1946 and reached a new peak of almost 60 million bushels in 1950. Probably because of large corn crops east of Chicago, barge receipts fell off at Chicago until 1956 and 1957 when large receipts of wheat and soybeans raised the total to about 59 million bushels.

Until 1954, truck receipts never exceeded 5 percent of the total. The pattern of truck receipts has paralleled that of barge receipts. Receipts increased up to the war years, decreased during those years, and increased again in the postwar period. Receipts since 1949 have reached new highs for truck movements.

Receipts by lake have been most variable, being movements mostly of imported grains. The record year was 1944 when large quantities of feed grains were imported from Canada. The large quantities in 1935 and 1937 represented imports of Argentina corn and in the 1950's Canadian oats.

Until 1953, receipts from the Illinois waterway were predominantly corn receipts. Since 1953, corn receipts have been smaller and wheat, oat, and soybean receipts larger so that corn has declined in importance. Large corn crops to the east of Chicago have discouraged barge movements of corn into Chicago, while export and processing outlets for soybeans to the east have been growing. Until 1955 and after, wheat receipts from the Illinois waterway had not gone above 4 million bushels and oat receipts only once above 5 million. (For a breakdown of waterway receipts by kind of grain since the opening of the waterway, see Table 26. For figures showing the relative importance of waterway transportation for corn at Chicago, see Table 27.)

St. Louis Receipts

After falling to fairly low levels in the early 1940's, grain receipts at St. Louis had increased rapidly until the drouths of 1954 and 1955 (Table 28). The 1956 receipts recovered to a new record of 107,351,006 bushels. Receipts have been running about 80 percent corn and wheat; in recent years corn has tended to gain on wheat, corn receipts increasing from about 40 percent of total receipts to about 50 percent (see Tables 28 and 29).

Soybean receipts had been small and variable within a range of

Table 26. — RECEIPTS OF CORN, WHEAT, SOYBEANS, AND OATS BY ILLINOIS WATERWAY, CHICAGO, 1932-1957

Year	Corn		Wheat		Soybeans		Oats		Other grains		Total, bushels
	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	
1957	34,199,000	57.7	6,551,000	11.0	13,485,000	22.7	5,091,000	8.6	0	0	59,326,000
1956	26,210,000	44.7	6,712,000	11.5	15,668,000	26.7	9,872,000	16.8	172,000	.3	58,634,000
1955	14,887,000	39.6	4,186,000	11.1	8,672,000	23.1	9,853,000	26.2	0	0	37,598,000
1954	20,612,000	63.5	2,567,000	7.9	5,205,000	16.1	4,036,000	12.4	32,000	.1	32,452,000
1953	28,253,000	65.7	2,632,000	6.1	8,128,000	18.9	3,953,000	9.2	35,000	.1	43,001,000
1952	40,349,000	75.6	1,836,000	3.4	8,195,000	15.4	2,996,000	5.6	0	0	53,376,000
1951	39,133,000	78.2	1,424,000	2.8	6,342,000	12.7	3,153,000	6.3	2,000	(a)	50,054,000
1950	45,919,000	76.6	1,604,000	2.7	6,676,000	11.1	5,727,000	9.6	5,000	(a)	59,931,000
1949	38,296,000	75.7	3,220,000	6.4	4,415,000	8.7	4,660,000	9.2	16,000	(a)	50,607,000
1948	28,501,000	79.4	2,782,000	7.8	2,039,000	5.7	2,561,000	7.1	7,000	(a)	35,890,000
1947	29,996,000	87.1	1,567,000	4.5	1,272,000	3.7	1,633,000	4.7	5,000	(a)	34,473,000
1946	17,164,000	77.0	692,000	3.1	1,420,000	6.4	3,006,000	13.5	0	0	22,282,000
1945	13,494,000	82.5	997,000	6.1	728,000	4.4	1,141,000	7.0	0	0	16,360,000
1944	13,663,000	95.1	584,000	4.1	0	0	108,000	.8	0	0	14,355,000
1943	12,400,000	97.0	51,000	.4	1,000	(a)	180,000	1.4	156,000	1.2	12,788,000
1942	15,094,000	94.8	550,000	3.4	197,000	1.2	53,000	.3	50,000	.3	15,944,000
1941	15,349,000	86.7	1,695,000	9.6	442,000	2.5	211,000	1.2	0	0	17,697,000
1940	16,266,000	81.4	2,773,000	13.9	753,000	3.8	174,000	.9	0	0	19,996,000
1939	13,206,000	77.4	1,957,000	11.4	1,076,000	6.3	837,000	4.9	8,000	(a)	17,084,000
1938	10,236,000	86.7	727,000	6.1	355,000	3.0	465,000	3.9	39,000	.3	11,822,000
1937	2,019,000	43.9	2,113,000	46.0	97,000	2.1	366,000	8.0	0	0	4,595,000
1936	1,299,000	71.6	437,000	24.1	28,000	1.5	33,000	1.8	19,000	1.0	1,816,000
1935	723,000	46.6	661,000	42.5	0	0	170,000	10.9	0	0	1,554,000
1934	173,000	15.0	981,000	85.0	0	0	0	0	0	0	1,154,000
1933	38,000	27.7	99,000	72.3	0	0	0	0	0	0	137,000
1932	0	0	0	0	0	0	0	0	0	0	0

Source: Board of Trade of the City of Chicago, Annual Reports.
[a] Less than 0.05 percent.

Table 27. — RECEIPTS OF CORN AT CHICAGO BY KINDS OF TRANSPORTATION, 1932-1957

Year	By railroads		By lake		By Illinois waterway		By truck		Total, bushels
	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	
1957	99,396,000	72.2	889,000	.6	34,199,000	24.9	3,093,000	2.3	137,577,000
1956	68,702,000	70.1	0	0	26,210,000	26.7	3,125,000	3.2	98,037,000
1955	79,110,000	81.6	0	0	14,887,000	15.4	2,891,000	3.0	96,888,000
1954	75,524,000	74.1	0	0	20,612,000	20.2	5,784,000	5.7	101,920,000
1953	71,205,000	69.0	0	0	28,253,000	27.4	3,718,000	3.6	103,176,000
1952	82,161,000	64.7	0	0	40,349,000	31.7	4,649,000	3.6	127,189,000
1951	77,085,000	64.1	0	0	39,133,000	32.5	4,090,000	3.4	120,308,000
1950	68,562,000	57.1	0	0	45,919,000	38.3	5,512,000	4.6	119,993,000
1949	70,868,000	62.2	0	0	38,296,000	33.6	4,782,000	4.2	113,946,000
1948	81,220,000	72.6	0	0	28,501,000	25.5	2,191,000	1.9	111,912,000
1947	120,438,000	79.2	0	0	29,996,000	19.7	1,708,000	1.1	152,142,000
1946	86,323,000	83.0	0	0	17,164,000	14.8	2,605,000	2.2	116,092,000
1945	88,005,000	86.4	0	0	13,494,000	13.2	439,000	.4	101,938,000
1944	74,470,000	84.1	0	0	13,663,000	15.5	377,000	.4	88,780,000
1943	81,458,000	86.0	0	0	12,400,000	13.1	856,000	.9	94,714,000
1942	88,402,000	83.6	0	0	15,094,000	14.3	2,241,000	2.1	105,817,000
1941	81,717,000	81.6	0	0	15,349,000	15.3	3,100,000	3.1	100,166,000
1940	71,918,000	77.2	0	0	16,266,000	17.5	4,943,000	5.3	93,127,000
1939	65,774,000	78.3	0	0	13,206,000	15.7	5,005,000	6.0	83,985,000
1938	122,878,000	90.6	60,000	(a)	10,236,000	7.5	2,627,000	1.9	135,801,000
1937	45,811,000	68.6	18,720,000	28.1	2,019,000	3.0	177,000	.3	66,727,000
1936	57,268,000	94.7	767,000	1.3	1,299,000	2.1	1,169,000	1.9	60,503,000
1935	27,841,000	84.4	3,623,000	11.0	723,000	2.2	783,000	2.4	32,970,000
1934	54,206,000	97.7	0	0	173,000	.3	1,121,000	2.0	55,500,000
1933	91,432,000	98.5	0	0	38,000	(a)	1,409,000	1.5	92,879,000
1932	70,600,000	99.8	0	0	0	0	132,000	.2	70,892,000

Source: Board of Trade of the City of Chicago, Annual Reports.
[a] Less than 0.1 percent.

Table 28. — RECEIPTS OF GRAIN AT ST. LOUIS, INCLUDING EAST ST. LOUIS, BY KINDS OF TRANSPORTATION, 1937-1957

Year	By railroad		By elevator and mill tracks		By river		By truck		By miscellaneous means		Total, bushels
	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	
1957	52,799,100	54.5	4,930,000	5.1	8,230,540	8.5	30,694,418	31.7	265,500	.2	96,919,558
1956	61,865,700	57.6	4,684,000	4.4	6,547,648	6.1	34,034,858	31.7	218,800	.2	107,351,006
1955	55,475,000	59.1	6,924,500	7.4	11,276,826	12.0	20,035,130	21.3	225,200	.2	93,936,756
1954	58,389,700	65.5	6,149,500	6.9	8,913,013	10.0	15,506,136	17.4	157,700	.2	89,116,049
1953	67,067,000	62.6	6,002,800	5.6	11,371,027	10.6	22,346,012	20.9	297,700	.3	107,084,539
1952	68,484,000	67.3	8,122,600	8.0	8,041,102	7.9	17,033,802	16.8	0	0	101,681,504
1951	57,829,600	62.2	8,570,300	9.2	13,445,171	14.4	13,189,014	14.2	0	0	93,034,085
1950	49,209,200	59.3	6,008,600	7.2	14,418,701	17.4	13,357,123	16.1	0	0	82,993,624
1949	57,731,200	67.4	5,196,900	6.1	10,458,600	12.2	12,243,730	14.3	0	0	85,630,430
1948	60,423,800	75.4	7,024,600	8.8	4,937,435	6.2	7,720,052	9.6	0	0	80,105,887
1947	61,932,000	78.9	8,535,000	10.9	3,494,000	4.4	4,481,000	5.7	103,000	.1	78,545,000
1946	50,060,000	73.6	7,505,000	11.0	5,817,000	8.5	4,279,000	6.3	432,000	.6	68,093,000
1945	62,095,000	80.9	7,353,000	9.6	5,546,000	7.2	1,604,000	2.1	188,000	.2	76,786,000
1944	54,217,000	81.3	6,401,000	9.6	4,761,000	7.1	1,233,000	1.8	148,000	.2	61,760,000
1943	65,522,000	86.7	6,490,000	8.6	2,639,000	3.5	778,000	1.0	181,000	.2	75,640,000
1942	39,931,000	87.1	3,587,000	7.8	910,000	2.0	1,333,000	2.9	111,000	.2	45,872,000
1941	26,207,000	77.4	2,429,000	7.2	2,623,000	7.7	2,470,000	7.3	139,000	.4	33,868,000
1940	30,622,000	77.1	2,673,000	6.7	2,434,000	6.1	3,885,000	9.8	104,000	.3	39,718,000
1939	35,697,000	73.0	2,904,000	5.9	4,516,000	9.2	5,087,000	10.4	724,000	1.5	48,928,000
1938	49,124,000	84.0	3,456,000	5.9	5,033,000	8.6	581,000	1.0	316,000	.5	58,510,000
1937	46,476,000	87.9	4,934,000	9.3	235,000	.4	576,000	1.1	700,000	1.3	52,921,000
1936	41,726,038	91.8	2,762,600	6.1	404,137	.9	391,579	.9	160,700	.3	45,445,054
1935	27,867,018	91.4	1,631,800	5.4	361,341	1.2	478,787	1.6	136,100	.4	30,475,046
1934	29,802,515	91.5	1,898,000	5.8	221,793	.7	564,564	1.7	105,500	.3	32,592,372
1933	37,073,658	91.8	1,663,100	4.1	1,006,690	2.5	435,860	1.1	189,800	.5	40,369,108
1932	36,252,200	94.2	1,651,200	4.3	.....	...	502,939	1.3	63,000	.2	38,469,339

Source: Merchants' Exchange of St. Louis, Annual Reports.

Table 29. — RECEIPTS OF CORN AT ST. LOUIS, INCLUDING EAST ST. LOUIS, BY KINDS OF TRANSPORTATION, 1932-1957

Year	By river		By truck		By elevator and mill tracks		By railroad		By miscellaneous means		Total, bushels
	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	Bushels	Percent	
1957	1,003,959	3.2	13,159,087	41.1	3,045,600	9.5	14,660,775	45.8	129,600	.4	31,999,021
1956	1,477,810	3.0	15,477,521	31.4	105,300	.2	32,112,600	65.2	104,400	.2	49,277,631
1955	4,248,404	13.1	5,856,211	18.1	393,300	1.2	21,780,100	67.3	102,600	.3	32,380,615
1954	3,264,042	9.0	8,359,533	23.0	188,100	.5	24,418,700	67.3	83,600	.2	36,313,975
1953	5,179,085	9.7	15,495,728	29.0	0	0	32,542,900	61.0	138,700	.3	53,356,413
1952	3,153,601	6.4	11,541,823	23.3	146,600	.3	34,597,900	70.0	0	0	49,439,924
1951	4,569,280	12.3	8,548,392	23.0	141,100	.4	23,821,800	64.3	0	0	37,080,572
1950	8,799,436	21.2	9,639,780	23.2	173,600	.4	22,952,100	55.2	0	0	41,564,916
1949	5,769,242	15.0	7,712,323	20.0	81,600	.2	24,978,700	64.8	0	0	38,541,865
1948	1,723,558	6.1	3,468,945	12.1	466,900	1.6	22,944,500	80.2	0	0	28,603,903
1947	1,690,000	4.6	2,590,273	7.1	490,000	1.3	31,890,000	87.0	7,000	(a)	36,667,273
1946	3,114,422	12.3	1,808,138	7.1	255,000	1.0	19,994,600	79.0	153,000	.6	25,325,160
1945	2,749,323	9.3	430,404	1.4	230,268	.8	26,098,600	88.3	54,400	.2	29,562,995
1944[b]	.....	....	.....	....	.....	...	.....	....	.....	..	17,825,017
1943	1,821,196	7.0	120,454	.5	796,930	3.1	23,184,700	89.3	35,700	.1	25,958,980
1942	282,379	1.1	519,264	2.0	305,385	1.2	24,927,500	95.7	7,500	(a)	26,042,028
1941	1,270,811	9.4	759,860	5.6	361,551	2.7	11,069,200	82.1	30,000	.2	13,491,422
1940	1,311,250	8.8	2,347,710	15.8	238,500	1.6	10,917,000	73.6	25,500	.2	14,839,960
1939	2,017,270	11.7	2,799,840	16.3	367,300	2.1	11,745,500	70.0	259,500	1.5	17,189,410
1938	4,373,948	14.2	192,619	.6	371,000	1.2	25,707,500	68.3	205,500	.7	30,850,567
1937	67,666	.3	82,709	.4	835,000	3.7	21,500,900	95.2	93,000	.4	22,579,275
1936	118,188	.6	28,209	.1	700,000	3.5	19,190,200	95.6	45,000	.2	20,081,597
1935	42,122	.4	68,442	.7	51,000	.5	10,166,300	98.2	18,000	.2	10,345,864
1934	53,298	.5	79,468	.7	466,500	4.0	10,856,000	94.7	7,500	.1	11,462,766
1933	98,668	.6	93,749	.6	31,500	.2	16,710,100	98.6	5,900	(a)	16,939,917
1932	0	0	146,387	1.0	23,800	.1	15,152,600	98.9	2,800	(a)	15,325,587

[a] Less than 0.05 percent.
[b] Transportation data for 1944 are not available.
Source: Merchants' Exchange of St. Louis, Annual Reports.

4 to 8 million bushels, but in 1956 a new record of 10.5 million bushels was set. Oat receipts have also varied considerably in a range of 5 to 10 million bushels.

The largest share of St. Louis grain comes in by rail; since World War II, however, the upward trend in truck receipts has been very marked. Also since World War II, river receipts have varied from 3 to 14 million bushels, but averaged about 9 million as against about 3 million in the prewar period.

In the postwar period, an increase in production in nearby Illinois counties and good export and domestic outlets at the Gulf and in the southeast for tonnage barged down the Mississippi resulted in an increase in truck receipts. In 1954 and 1955, truck receipts of corn declined because drouth reduced supplies (Table 29). While corn receipts were declining in these years, wheat and soybean receipts increased. These receipts, like corn receipts, are due to abundant production in nearby counties and to export markets at New Orleans. In 1956 favorable weather returned and a total of more than 34 million bushels of all grains was trucked in, 50 percent more than in 1953, the best previous year. There is only a limited local market for wheat for milling and none at all for soybeans.

River receipts have been quite variable. Receipts averaged about 9 million bushels annually from 1946 through 1957 divided about as follows: corn and wheat, each 3½ million bushels; and oats and soybeans, each 1 million bushels. To give specific information about the disposition of grain shipped by barge to St. Louis would require somewhat precise information about conditions in each year. It may be assumed that generally all the soybeans and most of the corn and wheat were stopped at St. Louis for inspection and storage and eventually shipped on for export. Most of the oats and the remainder of the wheat would have been used at St. Louis for processing and milling.

Receipts labeled "elevator and mill tracks" are mostly wheat and represent wheat trucked to elevators within the St. Louis switching district and originated there without incoming rail freight paid against them.

The St. Louis market has very definitely profited from increased grain production in its southern Illinois tributary territory. Low-cost water transportation puts it in a position to take much of the grain exported from the St. Louis market on a trucked-in, flat tonnage basis. This is true both for export grain to go through New Orleans and for feed grains to go to the southeast which may move either through Memphis or up the Tennessee river.

A very considerable proportion of the increasing truck receipts at St. Louis was corn until the drouth years reduced production (Tables 28 and 29). However, 1956 trucked corn receipts returned to the pre-drouth 1953 level.

The St. Louis market is well located to attract increasing volumes of trucked grain because: (1) production is increasing in its tributary areas; (2) low-cost water transportation to southern and export markets is available; and (3) the metropolitan area is the distribution center for the raw materials and finished products used in its grain producing hinterland.

RECEIPTS AT INTERIOR AND PRIMARY MARKETS

The bulk of the Illinois grain shipped to primary markets goes to Chicago, St. Louis, and Peoria. A small amount also goes to Milwaukee and Indianapolis. This study makes use of a very nearly complete series of statistics available for primary market receipts.

The interior market consists of a number of medium-sized cities with processing plants and three inspection points which have transfer elevators. Complete statistics on receipts at those interior markets and transfer points are not readily available. The annual summaries of grain inspections published by the U. S. Department of Agriculture[1] were used to estimate receipts at the interior markets with grain inspection service. The inspection service is maintained at all grain processing centers except at a few small soybean crushing plants and small flour mills. The annual summaries should reflect rail receipts accurately, but there is no way to determine what truck receipts are because only a very small percent is bought on official grades. The points for which rail inspection statistics are available include Bloomington, Cairo, Champaign, Danville, Gibson City, Galesburg, Kankakee, Paris, Quincy, Springfield, Taylorville, Farmer City, Gilman, and Sheldon. The last three are transfer and inspection points.

Table 30 presents a summary of receipts during 1945-1954 at Illinois interior points and the primary markets. An average of the 1945-1947 receipts (first 3 years of the study) was used as 100 in computing the index numbers.

In the 10 years, total receipts of grain at the interior points nearly doubled, while receipts at the primary markets remained fairly constant. The individual grains show about the same pattern, varying only in degrees from the total. There is no way to determine the

[1] Agricultural Marketing Service, Grain Division.

Table 30. — RECEIPTS OF CORN, WHEAT, SOYBEANS, AND OATS AT INTERIOR AND PRIMARY MARKETS, 1945-1954: Thousands of Bushels; 1945-1947 = 100

Grain	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
Interior markets										
Corn	22,423	34,334	21,878	33,528	42,707	42,749	44,590	41,831	38,637	38,998
Wheat	2,608	1,622	3,051	5,875	6,704	4,594	4,392	6,828	8,400	11,710
Soybeans	38,834	35,022	41,049	50,149	47,953	78,957	77,414	74,262	63,182	72,954
Oats	996	1,719	809	1,919	5,985	4,099	2,313	2,608	1,674	3,217
Total	64,861	72,697	66,787	91,471	103,349	130,399	128,709	125,529	111,893	126,879
Index	95	107	98	134	152	191	189	184	164	186
Primary markets										
Corn	144,382	245,579	127,646	179,547	174,822	171,579	170,219	173,069	152,469	137,118
Wheat	56,323	45,236	28,093	65,898	51,348	44,078	42,613	60,080	60,020	54,309
Soybeans	26,924	26,465	19,153	26,692	23,243	30,600	30,957	29,247	27,639	27,892
Oats	52,063	59,526	39,521	45,681	47,304	39,203	45,436	35,761	27,907	34,333
Total	279,692	376,806	214,413	317,818	296,717	285,460	289,225	298,157	268,035	253,652
Index	96	130	74	109	102	98	100	103	92	87

Source: series of Grain Inspection Summaries and Primary Market Receipts issued by the Agricultural Marketing Service, U. S. Department of Agriculture.

ownership of grain from the inspection summaries and to separate CCC shipments from those in commercial channels. Some of the increase in corn receipts may be due to country elevators asking for official grades on CCC shipments at the nearest inspection point. Shipments of the other grains for CCC were not important and should not affect the number of inspections at interior points.

The trend toward greater receipts at interior points is due to: (1) the decentralization of processing facilities and the building up of aggressive merchandising firms at interior Illinois points; and (2) the tendency for CCC to take over exports and ship directly from country elevators to the ports, by-passing the terminal markets.

As transportation costs increase, grain processing industries will probably find it increasingly necessary to locate as close as possible to their sources of raw materials with the further decentralization of grain markets. Both additional processing points and a greater proportion of grain going to interior points will contribute to decentralization. Also, with modern communications, grain merchandising firms need not be located at terminals to be successful.

The Government programs for grain are subject to Congressional acts and administrative rules and cannot be predicted. Most programs attempt, with varying degrees of success, to utilize existing grain marketing channels for the disposal of CCC surpluses.

SUMMARY

Illinois and U. S. production

Illinois is the leading state in soybean production, is second in corn, and third in oat production. In farm sales, however, the state ranks first in all these grains.

Since 1929, the state's share of total U. S. corn production has increased, while its share of that sold has decreased. Illinois produces an average of about 18 percent of the total U. S. corn crop and sells about 25 percent of all the corn sold from farms annually. It produces and sells about a fourth of the total U. S. soybean crop. The state has just about maintained its share of U. S. oat production at a little over 10 percent of the total, but its share of oat sales has been decreasing and now stands at about 15 percent of the total.

Illinois production and sales

Between the 1939-1943 and 1949-1953 periods, Illinois annual production of the four major grain crops increased an average of 24 per-

cent. Soybean production increased 63 percent; wheat, 43; corn, 23; and oat production, 6 percent.

In total production, the percentage gains in the three southern areas — 5, 6, and 7 — were larger and in the four northern areas were smaller than the gains for the state as a whole. The largest gain — a 60-percent increase — occurred in Area 6 in southeastern Illinois, principally because of greatly expanded soybean production there. The largest bushel gain occurred in Area 4, because grain production is most extensive there.

Grain sales increased from an average of 261,619,000 bushels annually in the 1939-1943 period to 397,248,000 bushels annually in the 1949-1953 period, a gain of 52 percent. The increase in production between the two periods averaged about 145 million bushels, while the increase in sales averaged about 136 million bushels. These figures indicate that most of the increase was sold.

About 15 percent of the corn and about 26 percent of the oats handled by country elevators were sold back to farmers in the same locality. The highest percentages were sold back to farmers in Areas 1, 2, and 5.

In the 1949-1953 period, the three southern areas supplied 26 percent of the grain sold compared to 21 percent in the 1939-1943 period. Areas 3 and 4, the principal cash-grain areas, supplied 54 percent in the latter period as compared to about 59 percent in the earlier. Areas 1 and 2 supplied about 20 percent of all grain sales in both periods. Thus the southern part of the state gained as related to the central part; its grain sales are still at a low level, however, compared with those of Areas 3 and 4.

In the postwar period, the most striking development in the Illinois grain production and sales pattern has been the growth of soybean production and sales in the three southern areas, but particularly in the counties in Area 6a. Between the 1939-1943 and 1949-1953 periods, soybean sales in the four northern areas declined from 76 to 57 percent of the Illinois total, while sales in the three southern areas increased from 24 to 43 percent.

Grain storage and processing

In 1955, approximately 1,274 elevator stations were operating all or part of the year. They handled an estimated volume of 318 million bushels from the 1953-1954 crop years. CCC grain handled for bin sites was excluded. An average volume of the 10-percent sample of elevators was 247,702 bushels.

Country elevators had 71,991,000 bushels of storage space of which space for 42,846,000 bushels was licensed for storage in 1955. Operators indicated they had about 44,783,000 bushels of space available for storage and inventories.

Almost three-fourths of the elevators in Illinois were built before 1920; that is, before the introduction and widespread use of trucks.

The smallest amount of country elevator space per bushel of grain handled is in Areas 1 and 7 and the largest is in Areas 4 and 5.

As of January 1, 1955, Illinois processors had about 75 million bushels of storage space and Illinois terminal and subterminal elevators 55 million bushels. The elevator space was predominantly at terminals. Flour mills, soybean mills, and malting plants accounted for seven-eighths of the processor space. Corn processors typically had a small amount of storage space relative to their processing capacity.

Illinois had 64 grain processing plants in 1955 of which seven had two grain processing activities at the same plant location. They had a processing capacity of 334,821,000 bushels and had actually processed 273,013,000 bushels the preceding year. Feed manufacturers and distillers indicated a capacity well above the preceding year's operating volume. Other groups of processors operated much closer to their rated capacities.

Processors, terminal, and subterminal elevators reported a merchandising volume of 223,193,000 bushels of grain in 1953-1954. Of this total, less than 8 percent was handled by processors.

In Illinois in 1953-1954, a total of 496,206,000 bushels of grain was processed and merchandised beyond the country level. In this year, 522,960,000 bushels of grain was received at terminals and processing plants, including storage grain to which the receivers did not take title. Of this amount, 63 percent was received by rail, 24 percent by truck, and 13 percent by water.

In 1953-1954, about 62 percent of the storage space beyond the country level was occupied. About 70 percent of the elevator space and about 50 percent of the processor space were occupied. There was no shortage of storage space at the terminal and processor level. The terminal elevators accepted more long-term CCC storage than the processors. This fact explains why a greater percent of terminal elevator space than of processor space was occupied.

In Illinois in 1955, slightly over 200 million bushels of storage space was available for handling and storage at the country elevator and wholesale levels. There were 141,500,000 bushels of CCC bin site space.

Over the 1949-1953 period, October was the peak month for grain sales when farmers sold an average of 68,151,000 bushels. The computed peak storage load for the same period came in November with a need for an average of 85,232,000 bushels of storage space, exclusive of needs for CCC stocks.

About 45 million bushels of the country elevator space was reported available for storage and inventories. This space plus almost 130 million bushels beyond the country level made a total of almost 175 million bushels of space. Allowing 30 million bushels of space in terminals for the use of out-of-state grain leaves 1.7 times as much storage space as that required to take care of the computed peak storage load.

In 1954, wholesale storage firms reported an average of 82 million bushels and country elevators an average of 28 million bushels of storage and inventory stocks for a total of 110 million bushels. The total was more than the computed peak load and well above the average computed storage load, but it included both CCC stocks and out-of-state grain held at terminal elevators and processor plants.

Southeastern Illinois was the shortest on storage space; it had enough storage space, however, to store over half the peak month's sales. In contrast, central Illinois had ample storage space. Since almost all soybeans and some corn move from southeastern Illinois to central Illinois processors, the lack of space for longer term storage in southeastern Illinois should not be a problem in marketing channels. Individual farmers who wish to hire local storage in this area would, however, find little or none available at most stations.

The relatively old age of most elevators — almost three-fourths of them built before 1920 — raises the question of their efficiency and adequacy under the totally different conditions that exist today. Thus the paradox of new elevators rising in areas of relatively plentiful older storage capacity can be explained.

Grain transportation

Transportation costs are an important cost of marketing grain. In Illinois grain may move east on New York rates, south to the Gulf for export, or may move on some combination of truck and water, or on truck, water, and rail by utilizing the Illinois-Mississippi waterway.

Rail rates have doubled since World War II. This increase has put Ohio and Indiana feed grains in a better competitive position in the northeastern markets than Illinois and Iowa grains. Water movements of grains have increased, at least partly as a result of these rail

rate increases. Another trend in the postwar period is the increasing importance of interior markets relative to the terminals. Receipts at the terminals in Illinois have remained fairly constant in the period following World War II while receipts at interior markets have nearly doubled.

Almost three-fifths of all grain handled by country elevators and about two-thirds of all grain shipped were moved by rail. About four-fifths of the wheat and soybeans and about three-fifths of the corn and oats shipped moved by rail. Trucking of all grains was heaviest along the Illinois river and in the area adjacent to St. Louis.

CONCLUSIONS

The continuing rise in rail freight rates will make it more and more difficult for Illinois and Iowa feed grains to compete with Ohio and Indiana feed grains in the northeastern market. The rise in freight rates will also continue to put a premium on processing close to the source of raw material and on developing truck-barge transportation of grain. These factors will tend to limit the growth in volumes at terminals unless the terminals can take advantage of low-cost water transportation routes.

The truck-water movement of grain appears to be growing. Its further growth will depend upon export outlets and riparian processing plants. Relatively few grain processing plants can now receive and ship by water, but more will certainly be built in the future.

There is more than enough space to house the ordinary commercial demand for storage under present conditions. The CCC demand is not predictable since it depends on political and administrative decisions as well as on economic factors.

In spite of the fact that ample storage capacity is available, the age and type of many country elevator facilities make them poorly suited to today's demand for efficient, rapid handling of grain. The apparent trend to more decentralized marketing and processing should make it more profitable to hold excess supplies in the country rather than at terminals. Therefore it is economically sound to expect new, efficient, large-scale country elevator units to be built and operated successfully in areas with an adequate volume of older storage capacity. Areas 6 and 7 need additional country storage because present capacity can provide very little of the intermediate — up to one year — storage needed by farmers.

APPENDIX I: AVERAGE PRODUCTION AND SALES BY COUNTIES AND AREAS

Table 31. — CORN PRODUCTION: By Counties Within Areas; Total Average Production 1939-1943, 1949-1953 and 1954-1956 and Percents of Increase Over 1939-1943

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Area 1					
Jo Daviess	3,045	3,534	4,019	16	32
Stephenson	4,964	6,036	6,939	22	40
Winnebago	4,069	5,163	5,768	27	42
Boone	2,708	3,517	4,184	30	54
McHenry	4,924	6,128	7,106	24	44
Lake	1,825	2,209	2,231	21	22
Carroll	3,648	4,901	5,508	34	51
Ogle	7,436	9,614	10,794	29	45
DeKalb	8,658	10,344	11,659	19	35
Kane	5,794	6,875	7,622	19	32
Cook	3,003	3,153	2,816	5	−6
Whiteside	7,728	9,720	10,414	26	35
Lee	8,137	10,647	12,101	31	49
DuPage	2,311	2,419	2,342	5	1
Total	68,250	84,260	93,500	23	37
Area 2					
Rock Island	3,500	3,974	4,389	14	25
Henry	10,007	11,616	12,785	16	28
Mercer	5,821	6,279	7,244	8	24
Knox	6,718	7,870	8,662	17	29
Henderson	3,387	3,668	4,308	8	27
Warren	6,517	6,849	7,988	5	23
Hancock	4,863	6,089	6,470	25	33
McDonough	5,565	6,239	7,324	12	32
Adams	3,626	5,111	5,118	41	41
Schuyler	2,112	2,659	2,761	26	31
Brown	1,323	1,685	1,712	27	29
Pike	4,395	5,778	5,584	31	27
Total	57,834	67,817	74,345	17	28
Area 3					
Bureau	11,532	12,892	14,310	12	24
Putnam	1,603	1,755	1,888	9	18
LaSalle	14,705	15,775	17,723	7	20
Kendall	3,751	4,491	4,902	20	31
Grundy	4,903	5,278	5,756	8	17
Will	6,986	7,800	8,318	12	19
Stark	3,550	4,023	4,433	13	25
Marshall	3,968	4,709	4,726	19	19
Peoria	4,510	5,628	5,740	25	27
Woodford	6,051	6,871	7,422	14	23
Fulton	5,613	6,586	7,784	17	39
Tazewell	5,933	7,590	7,783	28	31
Mason	2,954	4,143	4,552	40	54
Total	76,059	87,541	95,337	15	25

Table 31. — CORN PRODUCTION (Continued)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Area 4					
Livingston	12,590	14,154	15,438	12	23
Kankakee	6,783	8,246	9,442	22	39
McLean	14,887	17,480	18,691	17	26
Ford	5,558	6,340	6,919	14	24
Iroquois	12,365	13,498	15,472	9	25
Logan	6,288	8,866	8,809	41	40
DeWitt	4,392	4,963	5,516	13	26
Piatt	4,626	5,941	6,266	28	35
Champaign	11,397	13,752	14,819	21	30
Vermilion	7,752	9,257	10,377	19	34
Macon	5,371	7,079	6,883	32	28
Moultrie	3,086	3,925	3,827	27	24
Douglas	4,368	5,365	5,676	23	30
Coles	4,381	5,175	5,160	18	18
Edgar	5,505	6,270	7,219	14	31
Total	109,349	130,311	140,514	19	28
Area 5					
Cass	2,462	3,039	3,190	23	130
Menard	2,343	3,147	3,959	34	69
Scott	1,856	2,166	1,891	17	2
Morgan	4,359	5,409	4,838	24	11
Sangamon	6,922	8,684	7,930	25	15
Christian	5,302	7,822	6,785	48	28
Calhoun	825	1,114	1,209	35	46
Greene	3,312	4,241	4,088	28	23
Jersey	1,594	1,996	1,878	25	18
Macoupin	3,814	5,750	5,646	51	48
Montgomery	3,024	5,057	5,022	67	66
Madison	2,705	3,466	3,213	28	19
Bond	1,139	1,866	1,990	64	75
St. Clair	2,268	2,900	2,523	28	11
Clinton	1,373	1,949	1,808	42	31
Washington	849	1,322	1,456	56	72
Monroe	1,184	1,673	1,765	41	49
Randolph	1,430	2,092	2,187	46	53
Total	46,761	63,693	61,378	36	31
Area 6a					
Shelby	4,725	6,486	5,879	37	24
Cumberland	1,602	2,173	2,674	36	67
Clark	2,324	2,753	3,406	18	46
Fayette	1,951	2,877	3,421	47	75
Effingham	1,291	2,179	2,569	69	99
Jasper	1,917	2,480	2,751	29	44
Crawford	1,785	2,394	2,427	34	36
Marion	824	1,597	1,976	94	140
Clay	947	1,551	1,737	64	83
Richland	833	1,325	1,619	59	94
Wayne	1,527	2,995	3,007	96	97
Total	19,726	28,810	31,466	46	60

Table 31. — CORN PRODUCTION (Concluded)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Area 6b					
Jefferson	974	1,786	1,985	83	104
Perry	650	1,122	1,393	73	114
Franklin	656	921	1,121	40	71
Hamilton	898	1,492	1,524	70	70
Jackson	1,304	1,630	2,053	25	57
Williamson	543	695	850	28	56
Union	706	878	1,222	24	73
Johnson	487	473	609	−3	25
Pope	469	506	596	8	27
Hardin	264	312	317	18	20
Alexander	664	569	778	−14	17
Pulaski	653	625	752	−4	15
Massac	676	777	852	15	22
Total	8,944	11,786	14,053	32	57
Area 7					
Lawrence	1,411	1,966	2,204	39	56
Edwards	782	1,313	1,534	68	96
Wabash	1,047	1,361	1,647	30	57
White	2,260	3,424	3,941	52	74
Saline	1,105	1,649	1,842	49	67
Gallatin	1,551	1,995	2,426	29	56
Total	8,156	11,707	13,594	44	67
Total, all areas	395,079	485,925	524,187	23	33

Table 32. — WHEAT PRODUCTION: By Counties Within Areas; Total Average Production 1939-1943, 1949-1953 and 1954-1956 and Percents of Increase Over 1939-1943

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Area 1					
Jo Daviess	6	4	1	−33	−83
Stephenson	11	7	5	−36	−55
Winnebago	24	36	49	50	104
Boone	16	11	12	−31	25
McHenry	46	46	52	0	13
Lake	51	150	108	194	112
Carroll	14	11	9	−21	−36
Ogle	30	48	41	60	2
DeKalb	36	19	29	−47	−19
Kane	60	63	77	5	28
Cook	64	119	110	86	72
Whiteside	244	136	117	−44	−52
Lee	113	112	92	−1	−19
DuPage	64	108	109	69	70
Total	779	870	809	12	4

Table 32. — WHEAT PRODUCTION (Continued)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Area 2					
Rock Island	43	31	23	−28	−46
Henry	63	34	26	−46	−59
Mercer	60	47	31	−22	−48
Knox	67	124	87	85	30
Henderson	130	134	110	3	−15
Warren	67	63	32	−6	−52
Hancock	437	775	825	77	89
McDonough	400	402	386	1	−4
Adams	633	1,080	1,205	71	90
Schuyler	281	497	576	77	105
Brown	85	194	260	128	206
Pike	575	643	729	12	27
Total	2,841	4,024	4,290	42	51
Area 3					
Bureau	115	83	67	−28	−42
Putnam	57	53	49	−6	−14
LaSalle	68	96	78	41	15
Kendall	21	37	26	76	24
Grundy	12	33	17	175	42
Will	103	212	231	106	124
Stark	15	22	19	47	27
Marshall	58	117	93	102	60
Peoria	199	369	324	85	63
Woodford	69	96	88	39	28
Fulton	504	530	538	5	7
Tazewell	602	665	599	10	0
Mason	919	991	1,004	8	9
Total	2,742	3,304	3,133	21	14
Area 4					
Livingston	29	29	27	0	−7
Kankakee	111	252	246	127	122
McLean	168	153	132	−9	−21
Ford	17	18	23	6	35
Iroquois	92	398	440	333	378
Logan	930	769	722	−17	−22
DeWitt	126	210	166	67	32
Piatt	275	483	587	76	113
Champaign	256	882	1,200	244	369
Vermilion	323	1,207	1,485	274	360
Macon	448	711	795	59	77
Moultrie	180	472	626	162	248
Douglas	139	526	781	278	462
Coles	169	608	873	260	417
Edgar	434	769	965	77	122
Total	3,697	7,487	9,068	102	145
Area 5					
Cass	443	662	654	49	48
Menard	500	536	547	7	9
Scott	353	442	498	25	41
Morgan	797	1,035	1,100	30	38
Sangamon	1,160	1,339	1,510	15	30
Christian	920	1,700	1,866	85	103

Table 32. — WHEAT PRODUCTION (Concluded)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Calhoun	121	134	150	11	24
Greene	525	695	843	32	61
Jersey	412	526	604	28	47
Macoupin	899	1,211	1,764	35	96
Montgomery	594	1,229	1,595	107	168
Madison	1,555	1,504	1,851	−3	19
Bond	235	435	641	85	173
St. Clair	1,564	1,696	2,144	8	37
Clinton	823	858	1,154	4	40
Washington	1,097	1,266	1,849	15	69
Monroe	940	1,023	1,102	9	17
Randolph	879	844	1,108	−4	26
Total	13,817	17,135	20,979	30	52
Area 6a					
Shelby	239	825	1,322	245	453
Cumberland	46	285	590	520	1,183
Clark	178	490	818	175	360
Fayette	216	455	967	111	348
Effingham	195	396	740	103	280
Jasper	75	365	829	387	1,005
Crawford	154	323	540	110	251
Marion	138	343	781	148	466
Clay	49	166	489	239	898
Richland	99	204	393	106	297
Wayne	89	238	632	167	610
Total	1,478	4,090	8,101	177	448
Area 6b					
Jefferson	162	355	736	119	354
Perry	310	381	588	23	90
Franklin	169	366	561	116	232
Hamilton	127	191	417	50	228
Jackson	450	371	540	−18	20
Williamson	61	99	152	62	149
Union	113	141	183	25	62
Johnson	13	26	53	100	308
Pope	31	32	60	3	94
Hardin	2	1	6	−30	200
Alexander	83	71	127	−14	53
Pulaski	80	87	105	9	31
Massac	66	59	108	−11	63
Total	1,667	2,180	3,633	31	118
Area 7					
Lawrence	263	380	620	44	136
Edwards	185	251	381	86	106
Wabash	288	335	448	16	56
White	455	472	763	4	68
Saline	204	256	387	25	90
Gallatin	229	161	216	−30	−6
Total	1,624	1,855	2,814	14	73
Total, all areas	28,645	40,945	52,827	43	84

Table 33. — SOYBEAN PRODUCTION: By Counties Within Areas; Total Average Production 1939-1943, 1949-1953 and 1954-1956 and Percents of Increase Over 1939-1943

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Area 1					
Jo Daviess	11	6	17	−46	54
Stephenson	41	10	14	−76	−66
Winnebago	121	76	127	−37	5
Boone	45	53	100	18	122
McHenry	56	43	148	−23	164
Lake	68	99	263	46	287
Carroll	26	9	21	−65	−19
Ogle	231	166	171	−28	−26
DeKalb	452	338	391	−25	−13
Kane	170	189	280	11	65
Cook	207	282	461	36	123
Whiteside	303	383	491	26	62
Lee	692	601	782	−13	13
DuPage	176	249	449	41	155
Total	2,599	2,504	3,716	−4	43
Area 2					
Rock Island	114	170	219	49	92
Henry	432	471	578	9	34
Mercer	205	274	376	34	84
Knox	708	640	830	−10	17
Henderson	354	491	619	39	75
Warren	699	565	681	−19	−3
Hancock	1,173	1,520	1,837	30	57
McDonough	906	1,042	1,295	15	43
Adams	645	1,190	1,399	84	117
Schuyler	350	692	852	98	143
Brown	99	284	320	187	223
Pike	259	1,040	1,220	302	371
Total	5,944	8,379	10,225	41	72
Area 3					
Bureau	409	375	534	−8	31
Putnam	96	137	194	43	102
LaSalle	1,118	1,279	1,471	14	31
Kendall	329	251	374	−24	14
Grundy	443	719	907	62	105
Will	910	1,062	1,547	17	70
Stark	222	224	316	1	42
Marshall	329	500	684	52	108
Peoria	553	753	884	36	60
Woodford	449	638	953	42	112
Fulton	709	940	1,395	32	97
Tazewell	822	1,232	1,602	50	95
Mason	305	898	1,325	194	334
Total	6,694	9,008	12,187	34	82
Area 4					
Livingston	1,192	1,773	3,092	49	159
Kankakee	1,063	1,662	2,262	56	113
McLean	2,130	2,025	3,141	−5	48
Ford	747	836	1,409	12	89

Table 33. — SOYBEAN PRODUCTION (Continued)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Iroquois	1,733	3,012	4,135	74	139
Logan	1,401	1,739	2,277	24	62
DeWitt	1,278	1,265	1,740	−1	36
Piatt	1,980	1,853	2,438	−6	23
Champaign	4,080	3,724	4,959	−9	22
Vermilion	2,669	3,076	3,946	15	48
Macon	2,166	2,288	2,984	6	38
Moultrie	1,198	1,299	1,560	8	30
Douglas	1,760	1,880	2,182	7	24
Coles	1,104	1,709	1,870	55	69
Edgar	1,687	2,223	2,710	32	61
Total	26,188	30,364	40,705	16	55
Area 5					
Cass	426	1,003	1,071	135	151
Menard	491	930	1,029	89	110
Scott	172	536	571	212	232
Morgan	833	1,691	1,873	103	125
Sangamon	1,771	2,893	3,536	63	100
Christian	2,684	2,876	3,435	7	28
Calhoun	32	134	97	319	203
Greene	322	1,035	1,107	221	244
Jersey	132	671	668	408	406
Macoupin	854	2,339	2,215	174	159
Montgomery	995	1,962	1,976	97	99
Madison	169	1,270	1,288	651	662
Bond	141	692	653	391	363
St. Clair	173	1,097	1,123	534	549
Clinton	106	723	690	582	551
Washington	65	885	1,017	1,262	1,465
Monroe	20	283	308	1,315	1,440
Randolph	44	456	417	936	848
Total	9,430	21,476	23,075	128	145
Area 6a					
Shelby	1,255	2,020	2,125	61	69
Cumberland	183	947	958	417	424
Clark	260	1,167	1,266	349	387
Fayette	240	1,386	1,329	478	454
Effingham	190	1,011	946	432	398
Jasper	146	1,268	1,332	768	812
Crawford	75	661	716	681	855
Marion	62	827	907	1,234	1,363
Clay	80	863	786	979	882
Richland	44	539	703	1,125	1,498
Wayne	61	745	816	1,121	1,238
Total	2,596	11,434	11,883	340	356
Area 6b					
Jefferson	25	616	647	2,364	2,488
Perry	34	354	394	941	1,059
Franklin	18	258	321	1,333	1,683
Hamilton	59	337	425	471	620
Jackson	52	447	412	760	692
Williamson	10	87	139	770	1,290

Table 33. — SOYBEAN PRODUCTION (Concluded)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Union	15	213	238	1,320	1,487
Johnson	11	40	35	264	218
Pope	18	92	55	411	206
Hardin	2	6	4	200	100
Alexander	28	318	213	1,036	661
Pulaski	62	357	279	476	350
Massac	18	204	168	1,033	833
Total	352	3,329	3,330	846	846
Area 7					
Lawrence	100	543	355	443	255
Edwards	61	241	295	295	384
Wabash	126	338	363	168	188
White	130	536	549	312	322
Saline	76	314	360	313	374
Gallatin	50	83	153	66	206
Total	543	2,055	2,074	278	282
Total, all areas	54,346	88,549	107,195	63	97

Table 34. — OAT PRODUCTION: By Counties Within Areas; Total Average Production 1939-1943, 1949-1953 and 1954-1956 and Percents of Increase Over 1939-1943

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Area 1					
Jo Daviess	1,456	1,885	1,939	29	33
Stephenson	2,706	3,327	3,335	23	23
Winnebago	1,894	2,433	2,294	28	21
Boone	1,273	1,627	1,576	28	24
McHenry	2,214	2,912	2,457	32	11
Lake	1,120	1,461	973	30	−13
Carroll	1,712	2,029	2,171	18	27
Ogle	4,067	4,514	4,543	11	12
DeKalb	4,143	4,578	4,590	10	11
Kane	2,743	3,178	3,031	16	10
Cook	1,574	1,811	1,375	15	−13
Whiteside	2,782	3,484	3,882	25	40
Lee	3,627	4,257	4,450	17	23
DuPage	1,219	1,394	991	14	−19
Total	32,530	38,890	37,607	20	16
Area 2					
Rock Island	850	1,157	1,319	36	55
Henry	3,222	3,946	4,564	22	42
Mercer	1,236	1,802	2,027	46	64
Knox	1,604	2,318	3,021	44	88
Henderson	690	936	1,104	36	60

Table 34. — OAT PRODUCTION (Continued)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Warren	1,438	2,159	2,418	50	68
Hancock	1,681	1,592	1,792	−5	7
McDonough	1,430	1,668	2,130	17	49
Adams	1,579	1,379	1,609	−13	2
Schuyler	691	481	523	−30	−24
Brown	435	376	399	−14	−8
Pike	1,048	983	1,091	−6	4
Total	15,904	18,797	21,998	18	38
Area 3					
Bureau	3,701	4,431	4,912	20	33
Putnam	578	660	699	14	21
LaSalle	6,038	6,324	6,355	5	5
Kendall	2,123	2,293	2,038	8	−4
Grundy	2,163	1,908	1,906	−12	−12
Will	3,806	4,125	3,588	8	−6
Stark	1,074	1,435	1,660	34	55
Marshall	1,526	1,702	1,710	12	12
Peoria	1,353	1,791	1,913	32	41
Woodford	2,483	2,491	2,586	0	4
Fulton	1,491	1,556	1,810	4	21
Tazewell	1,775	1,737	1,971	−2	11
Mason	588	550	691	−6	18
Total	28,699	31,003	31,838	8	11
Area 4					
Livingston	6,342	5,378	5,708	−15	−10
Kankakee	2,760	2,663	2,749	−4	0
McLean	4,867	5,633	7,166	16	47
Ford	2,560	2,270	2,946	−23	15
Iroquois	5,261	4,025	4,770	−24	−9
Logan	1,623	2,165	2,916	33	80
DeWitt	836	1,207	1,836	44	120
Piatt	921	1,495	1,862	62	102
Champaign	2,449	3,326	4,159	36	70
Vermilion	1,671	1,536	1,797	−8	8
Macon	785	1,544	1,896	97	142
Moultrie	540	755	867	40	61
Douglas	1,009	1,077	1,364	7	35
Coles	648	823	849	27	31
Edgar	1,098	1,078	1,230	−2	12
Total	33,370	34,975	42,115	5	26
Area 5					
Cass	454	400	486	−12	7
Menard	482	567	705	18	46
Scott	180	162	216	−10	20
Morgan	895	893	905	0	1
Sangamon	1,487	1,820	1,942	22	31
Christian	980	1,196	1,190	22	21
Calhoun	68	77	78	13	15
Greene	412	353	423	−14	3
Jersey	244	125	183	−49	−25
Macoupin	1,043	751	760	−28	−27
Montgomery	1,033	878	978	−15	−5
Madison	715	343	535	−51	−25

Table 34. — OAT PRODUCTION (Concluded)

County and area	Average, thousands of bushels			Percent of increase of	
	1939-1943	1949-1953	1954-1956	1949-1953 over 1939-1943	1954-1956 over 1939-1943
Bond	473	306	454	−35	−4
St. Clair	932	409	604	−56	−35
Clinton	1,105	617	1,010	−44	−9
Washington	1,031	451	815	−56	−21
Monroe	380	192	343	−49	−10
Randolph	583	287	444	−51	−24
Total	12,397	9,827	12,071	−21	−3
Area 6a					
Shelby	805	886	1,017	10	26
Cumberland	250	187	212	−25	−15
Clark	282	151	176	−46	−38
Fayette	574	451	683	−22	19
Effingham	557	362	504	−35	−10
Jasper	484	256	347	−47	−28
Crawford	205	78	129	−62	−37
Marion	363	251	438	−31	21
Clay	252	166	328	−34	30
Richland	276	101	216	−64	−22
Wayne	253	89	251	−65	−1
Total	4,301	2,978	4,301	−31	0
Area 6b					
Jefferson	371	107	259	−71	−30
Perry	333	133	341	−60	2
Franklin	179	29	100	−84	−44
Hamilton	276	71	208	−74	−25
Jackson	216	89	234	−59	8
Williamson	72	32	115	−56	60
Union	43	36	124	−16	188
Johnson	26	11	62	−58	138
Pope	33	15	71	−55	115
Hardin	9	2	16	−78	79
Alexander	14	7	27	−50	93
Pulaski	72	35	77	−51	7
Massac	63	40	147	−37	133
Total	1,707	607	1,781	−64	4
Area 7					
Lawrence	172	49	126	−72	−27
Edwards	199	32	141	−84	−29
Wabash	111	25	92	−78	−17
White	219	61	168	−64	−23
Saline	164	42	142	−74	−13
Gallatin	79	33	83	−58	5
Total	944	242	752	−74	−20
Total, all areas	129,952	137,319	152,462	6	17

Table 35. — GRAIN SALES FROM FARMS: By Counties Within Areas; 1939-1943 and 1949-1953 Averages and Percent of 1949-1953 Increase Over 1939-1943

County and area	Sales, thousands of bushels		Sales per acre of land in farms, bushels		Percent of 1949-1953 increase over 1939-1943
	1939-1943	1949-1953	1939-1943	1949-1953	
Area 1					
Jo Daviess	284	404	0.8	1.1	42
Stephenson	1,046	1,523	3.0	4.4	47
Winnebago	1,330	1,986	4.7	7.0	49
Boone	1,057	1,659	6.0	9.4	57
McHenry	1,917	2,908	5.6	8.4	52
Lake	768	1,241	4.4	7.2	62
Carroll	575	891	2.2	3.4	54
Ogle	3,362	5,019	7.4	11.5	49
DeKalb	3,542	4,830	9.0	12.3	37
Kane	2,336	3,349	7.9	11.3	43
Cook	1,847	2,503	9.1	12.4	36
Whiteside	3,119	4,566	7.4	10.9	47
Lee	5,551	8,287	12.7	19.0	50
DuPage	1,319	1,794	10.3	14.0	36
Entire area	28,053	40,960	6.6	9.6	45
Area 2					
Rock Island	936	1,331	4.0	5.8	42
Henry	3,108	4,336	6.2	8.7	40
Mercer	1,442	1,983	4.3	5.9	37
Knox	2,815	3,886	6.8	9.3	37
Henderson	1,513	2,071	7.2	9.8	36
Warren	2,650	3,323	8.0	10.1	26
Hancock	3,081	4,569	6.6	9.9	48
McDonough	3,235	4,244	9.2	12.1	32
Adams	2,087	3,651	4.3	7.5	74
Schuyler	1,261	2,129	5.0	8.4	68
Brown	458	883	2.6	5.0	92
Pike	1,740	3,168	3.6	6.5	81
Entire area	24,326	35,574	5.7	8.4	47
Area 3					
Bureau	5,025	6,802	9.7	13.1	35
Putnam	988	1,346	10.6	14.4	36
LaSalle	11,030	14,431	16.6	21.8	31
Kendall	2,348	3,199	12.0	16.4	37
Grundy	4,244	5,572	16.9	22.2	31
Will	6,020	8,226	13.9	19.0	37
Stark	1,743	2,451	9.8	13.8	41
Marshall	2,579	3,815	11.2	16.5	47
Peoria	2,572	4,006	7.7	12.0	56
Woodford	4,331	5,960	13.8	19.0	38
Fulton	2,781	3,808	5.7	7.8	37
Tazewell	4,808	7,143	12.9	19.2	49
Mason	2,936	4,881	10.0	16.6	66
Entire area	51,405	71,640	11.8	16.4	39
Area 4					
Livingston	11,494	15,162	17.9	23.7	32
Kankakee	6,051	8,951	15.8	23.4	48
McLean	12,008	16,400	16.7	22.8	37
Ford	5,027	6,536	17.0	22.1	30

Table 35. — GRAIN SALES FROM FARMS (Continued)

County and area	Sales, thousands of bushels		Sales per acre of land in farms, bushels		Percent of 1949-1953 increase over 1939-1943
	1939-1943	1949-1953	1939-1943	1949-1953	
Iroquois	10,732	14,743	15.8	21.7	37
Logan	6,281	9,565	16.7	25.4	52
DeWitt	3,984	5,311	16.4	21.9	34
Piatt	5,217	7,412	19.4	27.5	42
Champaign	12,105	16,697	20.0	27.6	38
Vermilion	7,590	10,967	14.6	21.0	44
Macon	5,847	8,782	17.1	25.7	50
Moultrie	3,150	4,678	15.0	22.3	49
Douglas	4,798	6,828	19.3	27.5	42
Coles	3,358	5,440	11.3	18.3	62
Edgar	4,901	6,946	13.3	18.9	42
Entire area	102,543	144,418	16.5	23.3	41
Area 5					
Cass	1,983	3,347	9.2	15.6	70
Menard	1,906	3,050	9.9	15.9	61
Scott	1,040	1,745	6.8	11.5	69
Morgan	3,049	4,954	9.1	14.8	63
Sangamon	5,825	8,936	11.8	18.1	53
Christian	5,978	9,137	14.2	21.8	54
Calhoun	314	551	2.2	3.9	77
Greene	1,678	3,065	5.2	9.6	85
Jersey	806	1,621	4.0	8.0	100
Macoupin	2,443	4,883	4.9	9.7	98
Montgomery	2,317	4,695	5.7	11.6	104
Madison	1,998	3,389	5.3	9.0	70
Bond	546	1,448	2.5	6.5	165
St. Clair	2,048	3,410	6.5	10.8	66
Clinton	1,035	1,877	3.9	7.1	82
Washington	1,167	2,261	3.7	7.1	92
Monroe	1,109	1,693	5.1	7.8	53
Randolph	1,112	1,784	3.5	5.7	60
Entire area	36,354	61,846	6.7	11.4	70
Area 6a					
Shelby	3,421	6,114	7.6	13.5	78
Cumberland	679	1,923	3.4	9.6	183
Clark	1,120	2,605	3.9	8.9	133
Fayette	962	2,715	2.4	6.9	182
Effingham	643	1,914	2.4	7.1	198
Jasper	650	2,193	2.3	7.8	237
Crawford	627	1,607	2.6	6.7	156
Marion	395	1,574	1.3	5.3	298
Clay	317	1,337	1.3	5.3	322
Richland	312	1,026	1.6	5.2	229
Wayne	583	1,944	1.6	5.5	233
Entire area	9,709	24,952	3.0	7.7	157
Area 6b					
Jefferson	395	1,369	1.3	4.7	247
Perry	120	901	1.9	4.3	651
Franklin	291	788	1.5	4.2	171
Hamilton	427	964	2.0	4.6	126
Jackson	867	1,429	3.2	5.2	65
Williamson	169	330	1.0	2.1	95

Table 35. — GRAIN SALES FROM FARMS (Concluded)

County and area	Sales, thousands of bushels		Sales per acre of land in farms, bushels		Percent of 1949-1953 increase over 1939-1943
	1939-1943	1949-1953	1939-1943	1949-1953	
Union	306	631	1.6	3.4	106
Johnson	120	175	0.7	1.0	46
Pope	153	262	1.2	2.0	71
Hardin	52	74	0.7	1.0	42
Alexander	399	686	4.2	7.3	72
Pulaski	280	598	2.6	5.7	114
Massac	216	455	1.8	3.8	111
Entire area	4,074	8,662	1.8	3.9	113
Area 7					
Lawrence	849	1,751	4.4	9.1	106
Edwards	416	842	3.1	6.4	102
Wabash	738	1,217	6.3	10.5	67
White	1,510	2,752	5.5	10.1	84
Saline	724	1,368	4.1	7.7	88
Gallatin	918	1,268	5.9	8.1	37
Entire area	5,155	9,198	4.9	8.8	80
All areas	261,619	397,250	8.4	12.8	52

APPENDIX II: STORAGE ADDED SINCE 1955

Between 1955 and 1958 grain storage space in Illinois increased about 45 percent from 202 million bushels to about 293 million bushels. The 1958 figures are based on data collected by the Illinois Agricultural Stabilization Committee. County work sheets were analyzed and made as nearly comparable as possible to the 1955 data collected by the Agricultural Economics Department of the University of Illinois.

All of the space added was in country, subterminal, and terminal elevator space. Processor storage space was virtually unchanged. Country elevator space increased 60 million bushels, an 84-percent increase over the 72 million bushels in place in 1955. Subterminal and terminal space increased 32 million bushels, a 58-percent increase over 1955. Of this, space for about 20 million bushels was added on Chicago's South Side in anticipation of St. Lawrence Seaway developments.

The 1958 data do not include any information on the amount of flat space and the amount of space with elevating equipment. Information on recent and planned additions at the time of the 1955 survey indicates a large share of the country elevator space added since 1955 has been flat steel, warehouse-type construction with aerating equipment designed to store corn for the Commodity Credit Corporation. Several rail subterminals designed to store CCC corn in flat storage have also been built since 1955.

CCC binsite storage was increased about 50 million bushels, 36 percent, between 1955 and 1958.

There were substantial additions to grain storage space in all areas of the state except Area 7. It is the policy of the CCC to discourage storage of corn in counties south of U. S. Route 36. Storage built in Areas 5, 6, and 7 would have to be largely for handling and for the storage of wheat and soybeans and may account for the smaller amounts built there.

Grain Storage Space, January 1, 1955 and January 1, 1958

	Areas							Total
	1	2	3	4	5	6	7	
Country elevator capacity								
January 1, 1955	4,743	5,282	11,234	31,418	13,704	4,178	1,432	71,991
January 1, 1958	9,842	9,396	23,921	57,717	23,618	6,202	1,418	132,114
Percent of increase	108	78	113	84	72	48	−1	84
Terminal and subterminal elevator capacity								
January 1, 1955	35,850	1,334	5,997	2,265	9,575	.....	.....	55,021
January 1, 1958	60,404	3,695	8,511	4,009	10,450	.....	.....	87,069
Percent of increase	68	177	42	77	9	.....	.....	58
Processor capacity								
January 1, 1955	19,191	1,514	3,767	39,000	10,949	165	120	74,706
January 1, 1958	15,887	2,522	3,712	41,446	10,594	100	.....	74,261
Percent of increase	−17	66	−2	6	−3	−39	.....	−1
Processor, terminal and subterminal storage								
January 1, 1955	55,041	2,848	9,764	41,265	20,524	165	120	129,727
January 1, 1958	76,291	6,217	12,223	45,455	21,044	100	.....	161,330
Percent of increase	39	118	25	10	3	−39	.....	24
Total storage space								
January 1, 1955	59,784	8,130	20,998	72,683	34,228	4,343	1,552	201,718
January 1, 1958	86,133	15,613	36,144	103,172	44,662	6,302	1,418	293,444
Percent of increase	44	92	72	43	30	45	−9	45
CCC binsite capacity								
January 1, 1955	.....	.....	.....	.....	.....	.....	.....	141,500
January 1, 1958	.....	.....	.....	.....	.....	.....	.....	192,080
Percent of change	.....	.....	.....	.....	.....	.....	.....	36

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